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HYPERACTIVE CHILDRENS' AWARENESS OF THEIR BEHAVIOR WITHIN THE CLASSROOM SETTING: AN INTERACTIONIST PERSPECTIVE

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Abstract

The purpose of the present study was to investigate hyperactive and control childrens' awareness of their behaviors within the school system. In addition, hyperactive children described how medication affects their behavior and whether they feel it is necessary to control their characteristic behaviors.

The rationale for the present study was based on the fact that few studies have asked the hyperactive child about his awareness of his behaviors. Current research indicates the importance of self-perception studies. Researchers have intuitively assumed hyperactive children are not able to understand the affect of others so these children act and react inappropriately in social situations. However, this had not been empirically investigated. This research has implications for how significant others may be expected to interact with hyperactive children.

Q-analysis procedures and techniques were used to gather and analyze the data. Three hyperactive children and two control children were requested to describe their classroom behaviors by rank-ordering a comprehensive list of items, each describing one classroom behavior. The items, which were gathered from theory, readings, subjects, and personal observations, were arranged by each subject into a predetermined (pseudo-normal) distribution

pattern. The item scores for each subject were correlated and the correlation matrix factor analyzed. Each factor represented a single person. In addition, the difference between z-scores was analyzed which allowed differences between factors to be described. A structured interview was conducted with each subject to obtain further information on the subject's awareness of his classroom behaviors. Hyperactive children described their feelings about their medication regimen.

Results indicated there are two subgroups of hyperactive children: ones who are unaware of their characteristic behaviors as negatively affecting significant others and view themselves as popular within the school environment and ones who view their actions as inappropriate with an accompanying low self-esteem with regard to their schooling. The medication interview indicated that hyperactive children feel drugs have a calming effect and they feel the medication is necessary for controlling their behaviors.

It was concluded that viewing hyperactive children as unique individuals who may or may not be aware of their classroom behaviors must be incorporated into treatment strategies.

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Chapter 1

Scope and Focus of the Study

Background to the Problem

In comparison to other childhood disorders, hyperactivity is one of the most common behavior disorders (Whalen & Henker, 1984). Ross and Ross (1982) define hyperactivity as "a high level of activity that is manifested in situations in which it is clearly inappropriate and cannot be readily inhibited upon command" (p. 1). The term "hyperactivity" will be used throughout this paper to refer to children with the overlapping diagnoses of hyperkinesis, hyperactivity, and attention deficit disorder with hyperactivity.

The term hyperactivity has been used to describe both a symptom and the syndrome of this behavior disorder. This has resulted in confusion over the terminology and has impeded progress in the understanding of hyperactivity (Ross & Ross, 1982). A symptom is defined as "an indication of a disease or disorder noted by the patient himself" (Bantam Medical Dictionary, p. 405). Ross and Ross (1982) provide criteria for assigning syndrome status:

> the existence of a unitary cluster of symptoms, a common cause or having major etiological factors in common, a

> consistent response to treatment or a predictable course in the absence of treatment, and demonstrable differences between those with the disorder and other diagnostic groups or nonclinical groups. (p. 15-16)

There is little or no empirical support (Ross & Ross, 1982) to suggest that the symptoms of hyperactivity are statistically interrelated, that etiology is common, and that treatment will result in a distinctive and uniform outcome. There is some evidence (Barkley, 1982; Loney, Kramer, & Milich, 1981) which maintains that there are demonstrable differences between hyperactive children and children with conduct disorders. Taken as a whole, Ross and Ross (1982) suggest that "there is great heterogeneity in the group of children who currently are labeled as hyperactive" (p. 20) and continuance of the belief of one hyperactive syndrome will impede progress in the field.

Hyperactivity usually occurs as a primary symptom in a variety of medical and psychological disorders. Clinicians and researchers generally agree upon the primary and secondary symptomatology and exclusionary criteria (Cantwell, 1979; Douglas & Peters, 1979; Minde, 1977; Rapoport & Zametkin, 1980; Satterfield, Cantwell, & Satterfield, 1979; Whalen & Henker, 1980). The most frequently reported primary symptoms include chronic hyperactivity, short attention span, marked

distractibility, emotional lability, and impulsivity. Although all children will not exhibit all these symptoms, impaired attention is now viewed as the common denominator of this behavior disorder (Ross & Ross, 1982). Among the secondary symptoms are deficits in academic performance despite normal intelligence, low self-esteem, sleep-related problems, difficulties in social interaction particularly with peers, fluctuations in performance, and aggression. Classifying aggression as a secondary symptom is debatable in that recent research (Loney, 1980b) has suggested that hyperactivity and aggression are independent dimensions and, in fact, childhood aggression may be an important determinant of outcome in adolescence. Included in the exclusionary criteria for hyperactivity are other conditions and environmental events that could cause children to exhibit short-term or chronic characteristics associated with hyperactivity. Conditions and events to be ruled out prior to diagnosing hyperactivity include mental retardation, psychoses, severe sensory defects, gross neurologic disease, autism, serious developmental delays, and severe psychological stressors.

Hyperactivity is the single most common behavior disorder in the preadolescent group (Wender, 1975). Although the early school years are the period when most children are identified as

hyperactive, there are often definite precursors in infancy (Thomas & Chess, 1977), and the problem behaviors often persist with changing symptomatology into adolescence and young adulthood (Bellak, 1979; Weiss & Hechtman, 1979; Whalen & Henker, 1984). It is more common in boys than in girls, with sex ratios ranging from 5:1 to 9:1 (Ross & Ross, 1982). Several recent prevalence studies have reported the prevalence rate for hyperactivity in the elementary school population well below 10 percent, depending upon the social defining systems used. The most comprehensive of these prevalence studies (Lambert, Sandoval, & Sassone, 1978) reported rates in the 1 to 6 percent range. At present, Rapport (1983) and McGee, Williams, and Silva (1984) reported that most investigators accept a prevalence estimate of between 3 and 5 percent of school age children.

There is no critical diagnostic test for hyperactivity, there are few exclusionary criteria, and no unequivocal positive markers (Conners, 1975). The history, observations of immediate behavior, and reports of adults in the child's environment form the basis for the diagnosis (Sandoval, Lambert, & Yandell, 1976). While psychological tests and neurological and anatomical abnormalities may be corroborative, the absence of such data does not rule out the diagnosis of

hyperactivity. The behavior of the hyperactive child differs from that of his nonhyperactive peers in intensity, persistence, and clustering of symptoms rather than in presence or absence of specific symptoms.

Hyperactivity, as defined by parents and teachers, includes the following behaviors: disruptive, impulsive and socially inappropriate, and responds most readily to relatively minimal intervention. Stimulant medication is the most effective single treatment, when measured in terms of short-term improvement (Ross & Ross, 1982). The general consensus concerning frequency of positive drug response is that about 75 percent of the hyperactive children treated with stimulants manifest behavioral improvement; the remaining 25 percent either appear unchanged or become worse (Barkley, 1977; Cantwell, 1980). The favorable effects of stimulants appear to be attributable to an improvement in the child's attentional skills.

Safer and Krager (1983) reported the results of six biannual school surveys from 1971 to 1981. They found the rate of medication treatment of hyperactive students in public elementary schools increased from 1.1 percent in 1971 to 2.6 percent in 1981. In public middle/junior high schools, the rate of medication rose from 0.6 percent in 1975 to 1.1 percent in 1981. Methylphenidate use increased from 40 percent to 91

percent over all other types of medication prescribed for hyperactivity; the number treated with medication prescribed by the family doctor decreased from 98 percent to 59 percent. Other noteworthy findings in 1981 included: 19 percent of public elementary school children in special education classes were treated with medication for hyperactivity; hyperactive students in junior high school had received medication treatment for an average of five to six years; most children received medication between grades one through four; entrance into grades one and secondary school corresponded to an increased use of medication for hyperactivity; and female students were treated with medication for hyperactivity less often than male students. Of interest was Safer and Krager's (1983) finding that medication use for hyperactive students peaks in grade three and thereafter declines. This peak "parallels teacher reports on classroom hyperactivity" (p. 503).

However, in the past decade researchers (Cantwell & Carlson, 1978; Roche, Lipman, Overall, & Hung, 1979; Werry, 1977; Whalen & Henker, 1984) have raised questions concerning the wide scale use of stimulant medication. Ross & Ross (1982) have commented on the use of stimulant medication:

> No convincing demonstrations have been made of positive long-term effects of drug treatment; the effects of

> long-term drug usage on linear growth, cardiovascular functioning, and the psychological well-being of the hyperactive child, as well as the potential for drug abuse, are matters of concern. (p. 6-7)

Other forms of treatment intervention include traditional psychotherapy, behavior therapy, biofeedback, environmental manipulation, and special classroom programs. Each of these modes of intervention has proven useful over the short term, but long-term evidence of their efficacy is still lacking. There is an increasing trend towards multimodal treatment in which drugs are seen as accompanying other forms of intervention (Whalen & Henker, 1984). At the present time, no prediction of outcome for a specific child can be made regardless of mode or duration of treatment (Cantwell, 1978; Ross & Ross, 1982; Weiss & Hechtman, 1979; Whalen & Henker, 1984). Although no treatment has been shown to influence the long-range prognosis of hyperactivity, in some children the condition seems to disappear spontaneously with increasing maturity while in others it persists into adolescence and early adulthood, often to the detriment of social and vocational functioning. Of increasing concern to researchers and clinicians are the prevalence and persistence of hyperactivity, as well as the pervasiveness of its effects upon the child, his family, and the community (Whalen & Henker, 1984).

Hyperactive Child's Awareness of His Behaviors

Over the past decade there has been a radical change in the perception of the role played by the hyperactive child in the problems created by his behavior disorder. In the first half of the century the child was viewed as a docile victim (Bond & Appel, 1931; Ebaugh, 1923; Still, 1902) and later as a helpless victim in an impossible struggle with powerful internal and unaccounted forces (Kahn & Cohen, 1934). At the present time, Ross and Ross (1982) have asserted that theoretical and empirical developments have led to the perception of "the hyperactive child as an active force in creating and maintaining the often chaotic social environments associated with this behavior disorder" (p. 22). There is now empirical data which attests to the powerful and often adverse influence of the child on the early intrafamiliar dyadic relationships so that marital disharmony and family interaction problems result (Barkley, 1978; Campbell, 1979; Drash, 1975; Lyness, 1977; Mash & Johnston, 1982; Thomas & Chess, 1977). Other studies attest to the negative effect the hyperactive child has in attempting to relate to his school-age peer group and the disruptive effect of the unmedicated hyperactive child on the classroom (Battle & Lacey, 1972; Campbell & Paulauskas, 1979; Klein & Young, 1979; Whalen et al., 1978; Whalen, Henker, Collins, McAuliffe, & Vaux,

1979). Thus far, only one study (Stewart, Mendelson, & Johnson, 1973) has directly asked the hyperactive child whether he is aware of how his behavior affects others. The primary informants have been parents, teachers, psychiatrists, clinicians, siblings, and peers. This study will examine the hyperactive chid's awareness of his characteristic behaviors to see whether he is aware of his negative behaviors as helping to create and maintain a chaotic social environment.

Hyperactive Children's Opinions About Taking Medication

Little is known about how hyperactive children feel towards stimulant drug treatment and few studies (Baxley, Turner, & Greenwold, 1978; Henker & Whalen, 1980b; Sleator, Ullmann, & Neumann, 1982) have directly asked of the children such information. Ross and Ross (1982) provide numerous examples of children's fear of being on medication. For example, this is a statement they provide from a 9 year old boy:

> These pills won't make me too different, will they? See, Dr. Norris says now I'll be the way I want to be--like good in school and not crying in baseball and everything. He says I might even feel different in 30 or 40 minutes. Only I'm a bit scared about this because on TV there was this skittsy (schizophrenic) scientist with supercaps and when you took one you changed to how you wished you were

> in 30 seconds. And this boy, Richie, who was nine just like me he took one and after a bit he started looking funny, like strange, and he said to his friends, "I don't feel like I'm Richie anymore," and his friends all looked like What's he talking about? and then one of them said, "Who's Richie? There's no Richie here." And I just wondered if maybe I should start slow like with half a pill. It was real scary that his friends didn't even remember him. (p. 374)

Sleator et al. (1982) interviewed 52 subjects who had been diagnosed hyperactive, were 8 years of age or older, and had received stimulant medication for at least one year. They found "a pervasive dislike among hyperactive children for taking stimulants" (p. 478). These authors recommend that the children who object to taking medication should be individually interviewed to determine the intensity of the dislike.

In this study hyperactive children will be asked about their feelings regarding their medication regimen.

Purpose of the Study

In a comprehensive review of the literature on hyperactivity, Ross and Ross (1982) declare that "a major information gap exists" (p. 394) because subjective data on the hyperactive child's feelings about his condition has not been

explored. To date, the primary informants have been parents, teachers, psychiatrists, clinicians, siblings, and peers. Although doubts have been expressed about the validity of response data from school-age hyperactive children (Stewart et. al., 1973), these objections have been refuted by clinicians (Sulzbacher, 1975; Warme, 1980), questionnaire data on hyperactive children's views of the classroom (Loney, Whaley-Kahn, & Weissenburger, 1976), and interview data on hyperactive children's attitudes toward drug intervention (Henker & Whalen, 1980b; Robin & Rosco, 1980). This study will directly interview hyperactive children to ascertain whether they are aware of their characteristic behaviors as negatively affecting significant others within the classroom setting. In addition, the hyperactive chid's viewpoints about his medication regimen will be explored.

Definition of Terms

Operational definitions of terms critical to this study follow.

1. Hyperactive Behavior, as defined by Ross and Ross (1982), refers to "a high level of activity that is manifested in situations in which it is clearly inappropriate and cannot be readily inhibited upon command" (p. 1). The primary symptoms, derived from DSM III, include chronic hyperactivity, short

attention span, marked distractibility, emotional lability, and impulsivity. Among the secondary symptoms are deficits in academic performance despite normal intelligence, low self-esteem, sleep-related problems, difficulties in social interaction particularly with peers, fluctuations in performance, and aggression. The Werry-Weiss-Peters Activity Scale (Werry, 1968) will be employed in the present study to assess the level of hyperactive behavior in subjects. The Peabody Picture Vocabulary Test-Revised (Dunn & Dunn, 1981) will be administered to derive a level of cognitive ability. In this study it was the physician's referral that determined the diagnosis.

Problem Statement

This study will attempt to answer the following questions:

1. Is the hyperactive child able to recognize his characteristic behaviors within the classroom setting as negatively affecting significant others?
2. Is the hyperactive child able to describe how medication affects his behavior?
3. Does the hyperactive child feel that medication is necessary to control his characteristic behaviors?

This study will assume an interactionist perspective whereby the hyperactive child is viewed as playing an active role in creating and maintaining his behavior, while

concurrently the environment affects how the hyperactive child will react.

These research questions arose because of personal observations by the researcher and from an extensive exploration of other studies and related theory. As noted in the "Purpose of the Study," several prominent researchers have attested to the need for obtaining subjective data on the hyperactive child's feelings about his condition.

Assumptions Underlying This Research

It will be necessary for both parents and physicians to agree on the diagnosis of hyperactivity. Thus only "true" hyperactives versus "situational" hyperactives will be used in this study. True hyperactive children exhibit their negative behaviors in all situations; situational hyperactive children demonstrate hyperactive behavior generally in one particular setting, such as the home or at school. Male subjects are to be chosen over females because of the higher incidence of hyperactive boys.

Delimitations of the Study

This research will focus on boys aged seven to twelve years of age who are presently on stimulant medication for their condition.

Justification of the Study

To date, almost no information has been obtained from the

one source who is directly experiencing this condition--the hyperactive child. Whether the child is aware or unaware of his behavior has direct bearing on how significant others, such as parents, teachers, siblings, and peers, are to handle him. If the hyperactive child is aware of his behavior and how it negatively affects others within the classroom environment, then this child may respond appropriately when reprimanded by teachers and peers for his actions. However, if the child is not aware of how his behavior is adversely affecting others, then it may be necessary to insitute programs within the school setting to address this need. In addition, determining the hyperactive child's awareness of how his medication is affecting his performance and exploring his feelings toward his medication regimen are necessary when adopting an interactionist perspective. An interactional model proposes that the child has partial responsibility for his hyperactive behaviors. To assign responsibility for his actions to the hyperactive child requires documentation on how the child feels about his medication regiment and thereafter programs may be implemented which take the child's feelings into consideration.

From this study teachers, peers, and clinicians may form a framework when interacting with the hyperactive child which will either assume that the hyperactive child is aware of his

behaviors or has misconceptions of how his behavior affects significant others. Teachers, peers, and clinicians may work towards redirecting the child's negative actions to more socially acceptable behaviors. Classroom strategies aimed at both altering the child's faulty perceptions and reinforcing more accurate perceptions would include both verbal and nonverbal actions from significant others.

Chapter 2

Review of Related Literature

The literature relevant to this study may be classified under five general areas, each having subdivisions. The first area develops a model for viewing hyperactivity from an interactionist perspective. The second area reviews the characteristics of the hyperactive child across age stages and within age stages. The third area examines the hyperactive child's interactions with significant others. The fourth area reviews the hyperactive child as an informational source. Finally, the fifth area establishes the need for determining the child's perceptions and their validity.

Hyperactivity as Viewed From an Interactionist Perspective

Operational Definition.

In this study hyperactivity, as defined by Ross and Ross (1982), is "a high level of activity that is manifested in situations in which it is clearly inappropriate and cannot be readily inhibited upon command" (p. 1). Ross and Ross (1982) provide primary and secondary symptomatology and exclusionary criteria based on the works of numerous researchers (Cantwell, 1979; Douglas & Peters, 1979; Minde, 1977; Rapoport & Zametkin, 1980; Satterfield et al., 1979; Whalen & Henker, 1980). The primary or core symptoms include chronic hyperactivity, short

attention span, marked distractibility, emotional lability, and impulsivity. Among the secondary symptoms are deficits in academic performance despite normal intelligence, low self-esteem, sleep-related problems, difficulties in social interaction particularly with peers, fluctuations in performance, and aggression. Included in the exclusionary criteria for hyperactivity are mental retardation, psychoses, severe sensory defects, gross neurologic disease, autism, serious developmental delays, and severe psychological stressors.

Table 1 contains the operational criteria for the Attention Deficit Disorder with Hyperactivity (DSM III, 1980, p. 43-44). Diagnosis is made from the child's history, observations of immediate behavior, and reports of adults in the child's environment (Sandoval et al., 1976).

Table 1

Diagnostic Criteria for Attention Deficit Disorder with Hyperactivity

The following signs of developmentally inappropriate inattention, impulsivity, and hyperactivity should be reported by adults in the child's environment, particularly teachers and parents. The symptoms are variable: they may be absent in new

(table continues)

or one-to-one situations, but may worsen when self-application to a task is required as in the school situation. The number of symptoms specified here is for children between the ages of eight and ten. In younger children more symptoms are usually present and in more severe forms, whereas in older children the severity and number both tend to diminish.

Inattention. At least three of the following:

1. Often fails to finish things he or she starts.
2. Often doesn't seem to listen.
3. Easily distracted.
4. Has difficulty concentrating on schoolwork or other tasks requiring sustained attention.
5. Has difficulty sticking to a play activity.

Impulsivity. At least three of the following:

1. Often acts before thinking.
2. Shifts excessively from one activity to another.
3. Has difficulty organizing work (not due to cognitive impairment).
4. Needs a lot of supervision.
5. Frequently calls out in class.
6. Has difficulty awaiting turn in games or group situations.

Hyperactivity. At least three of the following:

(table continues)

1. Runs about or climbs on things excessively.
2. Has difficulty sitting still or fidgets excessively.
3. Has difficulty staying seated.
4. Moves about excessively during sleep.
5. Is always "on the go" or acts as if "driven by a motor."

Onset before the age of seven.

Duration of at least six months.

Not due to schizophrenia, affective disorder, or severe or profound mental retardation.

Note. Adapted from Diagnostic and Statistical Manual of Mental Disorders (3rd ed., p. 43-44) by American Psychiatric Association, 1980, Washington, D.C.: APA, Copyright 1980 by The American Psychiatric Association.

Psychological tests and neurological and anatomical abnormalities corroborate the diagnosis, but the absence of this data does not rule out the diagnosis of hyperactivity. The hyperactive child is diagnosed on the basis of intensity, persistence, and clustering of symptoms. Thus, not every child will exhibit all the listed symptoms throughout his lifetime, but will demonstrate these behaviors in varying degrees at different stages of development in situations in which it is clearly inappropriate.

The behavior disorder that is called hyperactivity has never had a universally accepted descriptor and this has

resulted in a proliferation of terms being applied to the disorder, such as hyperactivity, minimal brain dysfunction, brain damage, learning disability (Delong, 1972). This terminological confusion was evident from 1902 when Still used a variety of terms to describe this behavior disorder. According to Ross and Ross (1982), Still distinguished between:

> children with demonstrable gross lesions of the brain; those with a variety of acute diseases, conditions, and injuries that would be expected to result in brain damage although none could be demonstrated; and those with hyperactive behavior patterns that could not be attributed to any known causes. (p. 11)

By using this variety of terms Still laid the groundwork for the three major diagnostic categories--brain damage, minimal brain dysfunction, and hyperactivity--and the term learning disabilities could now describe children with a variety of behavior disorders. Over the next 60 years the concepts of brain damage, minimal brain dysfunction, and hyperactivity were further refined. For example, in 1935 Childers differentiated between hyperactive children and brain-damaged children. In 1957 Laufer and his associates (Laufer & Denhoff, 1957; Laufer, Denhoff, & Solomons, 1957) introduced the descriptors

hyperkinetic behavior syndrome and hyperkinetic impulse disorder. By the late 1960's, the concept of hyperactivity was accepted in the literature (Ross & Ross, 1982). For an excellent review on the history of the terminological confusion, refer to Ross and Ross (1982).

Terminology has continued to be a problem in the 1980's. However, recent studies (Edelbrock, Costello, & Kessler, 1984; Lahey, Schaughency, Strauss, & Frame, 1984) both corroborate the distinction between Attention Deficit Disorder with- (ADDH) and without- (ADD) Hyperactivity as delineated in DSM III. Edelbrock et al. (1984) factor analyzed the responses on the Teacher Child Behavior Profile for 450 clinically referred boys between 6 to 11 years old and found a factor labeled "inattentive" and a factor labeled "nervous, overactive." These factors appeared to correspond to the symptom clusters of Attention Deficit Disorder as described in DSM III. A second comparison was made between 25 boys diagnosed as having Attention Deficit Disorder (ADD) and 62 clinically referred non-Attention Deficit Disorder boys on teacher ratings of school behavior, school performance, and adaptive functioning. Edelbrock et al. (1984) found that ADD and ADDH scored significantly higher on the inattentive scale than non-ADD boys. In addition, ADDH boys scored significantly higher on

the nervous, overactive scale. These findings provide empirical corroboration to the categorically defined subtypes of ADD with and without hyperactivity as outlined in DSM III.

Lahey et al. (1984) chose from a population of 625 children in grades 2 to 5, 10 children diagnosed as attention deficit disorder with hyperactivity (ADDH) and 20 children diagnosed as attention deficit disorder without hyperactivity (ADD). When compared to matched normal control children on the basis of teacher ratings, peer rating, and self-report measures, the two ADD groups exhibited different behaviors. The ADDH group had aggressive conduct disorder, bizarre behavior, lack of appropriate guilt, were unpopular, and performed poorly at school. The ADD group were anxious, shy, socially withdrawn, moderately unpopular, and performed poorly in sports and academics. Both groups exhibited some depression and poor self-concept, but differed in areas of self-esteem, with the ADDH group showing low self-esteem in the areas of behavior and popularity and the ADD group manifesting poor self-concept with regard to physical appearance, anxiety, and general happiness.

The Edelbrock et al. (1984) and Lahey et al. (1984) studies both provide empirical support for the distinction between ADDH and ADD in DSM III. This study will incorporate

the classification system outlined in DSM III to include only subjects diagnosed by medical doctors as hyperactive.

The Syndrome Issue.

Ross and Ross (1982) provide criteria for assigning syndrome status to a behavior disorder:

> the existence of a unitary cluster of symptoms, a common cause or having major etiological factors in common, a consistent response to treatment or a predictable course in the absence of treatment, and demonstrable differences between those with the disorder and other diagnostic groups or nonclinical groups. (p. 15-16)

To date, evidence for a homogeneous group of hyperactive children which would support assigning syndrome status to this behavior disorder has failed and Loney (1980b) has asserted that:

> despite decades of searching, however, no such homogeneous group is presently known to exist....It is clear that the syndrome is not monolithic and children who are said to have the syndrome are a heterogeneous group in etiology, symptoms, and course. (p. 34)

Models of Hyperactivity: Interactionist Perspective.

Hartsough and Lambert (1982) have summarized the various etiologies of hyperactivity into three models. The first model

attributes hyperactivity to some organic, neurological, or metabolic deficit of the individual. This viewpoint regards the child as solely responsible for his hyperactivity due to medical factors which result from a dysfunction of the central nervous system that prevents normal self-control. The second model, the social system model, stresses the child's social environment as "creating" the hyperactive child by using the term "hyperactive" to label the child and thus the child's environment creates the negative behaviors. The third model, which is a combination of the organic perspective and social system models, is the interactive system model which states that it is the complex interaction between the child's environment, which includes individual differences in the family and school environment, and his physical and psychological states which lead to the behavior disorder. The interactionist position accommodates the combination of multiple etiological factors including the influence of the immediate social and nonsocial environment (Bell & Harper, 1977; Chess, 1979; Porges & Smith, 1980). Thus, the continua of organic and environmental factors cause, to varying degrees, the cluster of behaviors characteristic of hyperactivity (Porges & Smith, 1980).

The hyperactive child's role in the problems created by

his behavior disorder has evolved in the following manner: In the first half of the century the hyperactive child was generally viewed as having a disease which resulted in diverse and disruptive behavioral consequences (Bond & Appel, 1931; Ebaugh, 1923; Still, 1902). In the 1940's, when the concept of minimal brain dysfunction gained acceptance, the hyperactive child was viewed as a victim forever struggling with powerful internal and unaccounted forces, that is, the "driven" child (Kahn & Cohen, 1934; Ross & Ross, 1982). In the last decade, both theoretical (Bandura, 1974; Bell & Harper, 1977; Bronfenbrenner, 1979; Chess, 1979; Klaus & Kennell, 1976; Pederson, 1976) and empirical developments (Barkley & Cunningham, 1979; Henker & Whalen, 1980a) led researchers such as Ross and Ross (1982) to view the hyperactive child as "an active force in creating and maintaining the often chaotic social environments associated with this behavior disorder" (p. 22). The interaction model, which researchers such as Ross and Ross (1982) advocate, assumes that a supportive environment in infancy and early childhood can prevent many of the negative behaviors associated with hyperactivity from developing. Conversely, a highly disorganized or nonsupportive environment can result in even a normal infant displaying behaviors that culminate in a hyperactive diagnosis. Problems develop when

there are repeated negative interactions between the child's hyperactive behavior and the demands and expectations of his social environment. Thus, it is the combination of the child's organic makeup and environmental factors which result in behaviors characteristic of hyperactivity (Chess, 1979). The Chess (1979) interactional model places hyperactive behaviors along a strong-weak continuum. To varying degrees of intensity, the child who is exhibiting hyperactive behaviors such as restlessness and impulsivity is prevented from participating in activities with his family and peers which results in social interaction incompetencies. Likewise, the angry and/or withdrawn mother, for example, results in a diminishing of the quality of the mother-child relationship (Campbell, 1979). From an interactional perspective, both the hyperactive child and significant others are influencing each other which results in the presence or absence of hyperactive behaviors from the child.

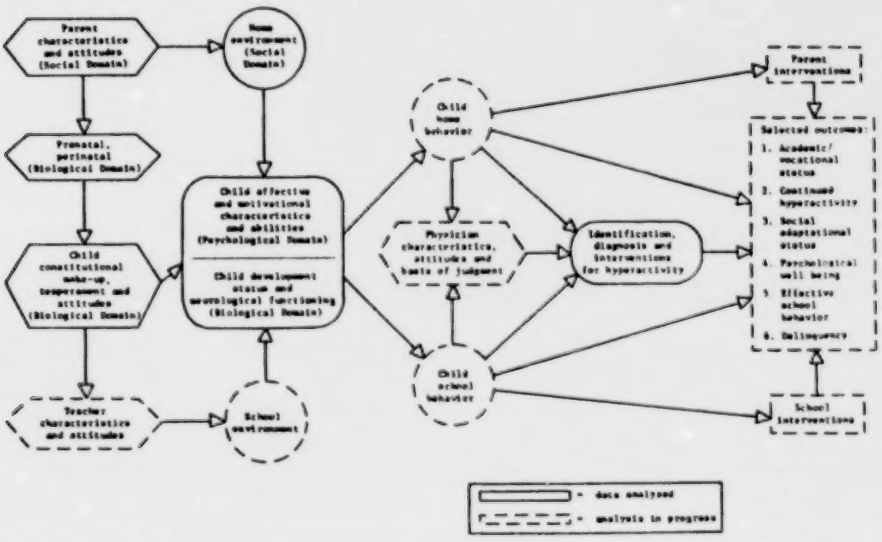
Lambert and Hartsough (1984) have proposed an interactive model for determining outcomes for hyperactive children. This multidimensional model specifies that individual differences in biological and psychological factors and differences in family and school environments all contribute to determine whether a child will be identified as hyperactive. This model describes,

according to Lambert and Hartsough (1984), "a system of hypothesized relationships having presumed directional linkages that determine outcomes" (p. 99). The model, as shown in Figure 1, suggests that being identified as hyperactive is dependent on the interplay of the following predispositional and mediational factors:

Predispositional. 1) parent characteristics and attitudes; 2) prenatal and perinatal factors; 3) childhood constitution and temperament; 4) home environment factors.

Mediational. 1) childhood affective and motivational factors; 2) childhood developmental status and abilities; 3) childhood home behavior; 4) teacher characteristics and attitudes; 5) school environment factors; 6) childhood school behavior; and 7) physician characteristics, attitudes, and basis for judgment.

Figure 1. Interactive model for determining outcomes for hyperactive children.


Parent characteristics and attitudes (Social Domain)
Home environment (Social Domain)
Prenatal, perinatal (Biological Domain)
Child constitutional make-up, temperament and attitudes (Biological Domain)
Child affective and motivational characteristics and abilities (Psychological Domain)
Child development status and neurological functioning (Biological Domain)
Teacher characteristics and attitudes
School environment
Child home behavior
Physician characteristics, attitudes and basis of judgment
Child school behavior
Identification, diagnosis and interventions for hyperactivity
Parent interventions
Selected outcomes:
1. Academic/ vocational status
2. Continued hyperactivity
3. Social adaptational status
4. Psychological well being
5. Effective school behavior
6. Delinquency
School interventions
= data analyzed
= analysis in progress

Note. Adapted from "Contribution of predispositional factors to the diagnosis of hyperactivity" by N. M. Lambert and C. S. Hartsough, 1984, American Journal of Orthopsychiatry, 54, p. 100. Copyright 1984 by American Orthopsychiatric Association, Inc.

These authors explain that among the predispositional factors, two domains of family-determined social factors are specified: parent characteristics and attitudes, and home environment characteristics. The biological contributions to hyperactivity

include prenatal/perinatal factors, and childhood constitutional makeup and temperament. These four sets of predispositional factors are hypothesized to interact with one another as well as the mediating factors which all contribute to produce behavior at home and at school. If a child's behavior prompts a referral and thus an examination by a physician, the home and school behavior, the child's medical history, and medical diagnostic data will all be reviewed in determining a diagnosis of hyperactivity. In this conceptual framework it is assumed that the school environment contributes to behavior which, in turn, mediates the identification and treatment process. The value of such a model is that analysis can be done on the contribution of variables between domains.

Lambert and Hartsough (1984) began some empirical analysis of variables from the predispositional domains in the model. The domains of parent characteristics/attitudes, home environment, prenatal/parinatal factors, and childhood constitution and temperament were studied by deriving data from the Berkeley Parent Interview and developmental histories of 97 subjects who had participated in another larger study which included 492 families. The subjects were between 5 to 11 years of age. The authors used hierarchial multiple regression procedures for the analysis of the data. Results indicated

that each domain individually contributed statistically significant variance and thus supports etiology of hyperactive behavior from an interactionist perspective. Thus, social characteristics of the family predict hyperactivity, home environments are a contributing factor, and history of hyperactivity or early temperament characteristics are all significantly associated with hyperactivity. In addition, fetal distress and other organic problems occurring during the pregnancy contribute toward hyperactivity. Lambert and Hartsough (1984) contend that "although both the biological and social models as explanations for the etiology of hyperactivity are supported, a multidimensional model provides substantially more explanatory power" (p. 107).

For purposes of this study, the interactional model as proposed by Lambert and Hartsough (1984), will be adopted. It is assumed that the hyperactive child's awareness of his negative behaviors is influenced by how his actions affect significant others, which results in negative responses. Conversely, the hyperactive child has preconceived notions which prompt him to act inappropriately and this mediates the interaction process. Thus, both the hyperactive child and significant others interact to create and maintain a response set of negative interactions.

Characteristics of the Hyperactive Child

The characteristics of hyperactive children are generally divided into the major developmental periods of infancy, preschool, middle childhood, adolescence, and adulthood. The behaviors described within each developmental period constitute the total constellation of behaviors likely to occur. It is most unlikely that an individual hyperactive child would display all these behaviors; it is the cumulative effect of a number of negative behaviors of varying intensity that leads parents and clinicians to suspect hyperactivity.

For each individual child, both the time of onset and the duration of symptoms can vary to a large degree. For some individuals the infancy and preschool periods may be relatively untroubled, with the onset of hyperactivity coinciding with entering the school system, and the duration of symptoms may be brief. Other children, however, experience symptoms indicative of hyperactivity from infancy and may persist with changing symptomatology, into adulthood (Campbell, Endman, & Bernfeld, 1977; Weiss & Hechtman, 1979; Wender, 1979). The form of negative behaviors also changes, paralleling the changes in maturation and social functioning. In addition, the negative behaviors viewed by significant others as most serious also changes. Within each developmental stage it is the frequency,

intensity, and inappropriateness of the behaviors that distinguish the hyperactive child from his same-age, same-sex nonhyperactive peers. Relevant to this study are those characteristics of middle childhood.

Middle Childhood.

The hyperactive child's pattern of extreme fluctuations of behavior, performance, and mood are most apparent as a clinical entity in this developmental period. To his parents, the behavior that could be dismissed as immature in the preschool years can no longer be ignored. The parents recognize that, compared to his same-age peers, he is lagging behind. The child now begins to feel anxious about his peer status and school performance; often he is depressed (Brumback & Weinberg, 1977). Physiologically, often he is a reluctant, light eater and a light sleeper. He does not fall asleep easily and he awakens early. Within the home setting he is now a source of anxiety and often a hazard (Ross & Ross, 1982). He may be extremely active, with an underlying clumsiness. His high activity level and short attention span result in his being disruptive, excitable, easily upset, lacking in self-control, and impulsive without taking into account all aspects of a situation (Campbell et al., 1977). These behaviors are evident in both the home and school settings. Klein and Young (1979)

have proposed that it is the combination of high activity level and high disruptive behavior that distinguishes hyperactivity from high normal activity in the teacher's mind. The teacher spends much time and effect trying to keep the hyperactive child on task. When he is off task he is disruptive and engaged in disorganized, negative attention-getting behavior. Because of his inability to effectively handle reinforcement (Douglas, 1975), teacher intervention serves to prolong the disruptive behaviors. He appears to have difficulty focusing on what is important. In addition, he has difficulty estimating time (Cappella, Gentile, & Juliano, 1977), so teacher warnings alluding to time have little meaning for him. The hyperactive child's impulsivity results in his having more negative social interactions than his high-active peers. While he is not behaviorally isolated and ignored by his peers in the primary grades (Klein & Young, 1979), in the upper elementary grades his peers often openly dislike and exclude him from activities (Riddle & Rapoport, 1976). His grades often fluctuate from high to low and he does not do as well in school as his cognitive abilities would predict (Cantwell & Satterfield, 1978; Gadow, 1983). The hyperactive child demonstrates poor peer adjustment which Ross and Ross (1982) attribute to social and emotional immaturity, and incompetency

in the prerequisites for positive peer interactions. He engages in such undesirable immature behaviors such as showing off and clowning, outbursts of temper and/or temper tantrums if his demands are not met, and trying to dominate his peers. The unpredictability of his behaviors are rarely tolerated by this age group. Paulauskas and Campbell (1979) have commented that the one complicating aspect for the hyperactive child is that he is unable to understand the experiences and affect of other people, so his perception of the effects of his behavior on others is poor. The peer interaction problems of the hyperactive child result in a cycle of negative interactions which may lead to secondary symptoms such as poor self-esteem, defiance, and sadness (Cantwell, 1979; Ross & Ross, 1982).

Interactions With Significant Others

This study focused on hyperactive children within the middle childhood period, aged 7 to 11. Therefore, this section will be limited to examining the interactions with significant others only within this developmental period.

Parent-Child Interactions.

A number of studies have examined differences between hyperactive boys and their controls in their interactions with their mothers (Battle & Lacey, 1972; Campbell, 1973, 1975; Campbell et al., 1977; Cunningham & Barkley, 1979).

Campbell (1973, 1975) was the first researcher to compare the behavior of unmedicated hyperactive and nonhyperactive children, each paired with his mother, in structured problem-solving situations. Each child was instructed to attempt a series of tasks, all of which varied in difficulty. The mother could provide as much help as she wanted. Campbell (1973, 1975) found that on easy tasks there were no differences between the hyperactive and nonhyperactive group mothers. On difficult tasks, however, the hyperactive group mothers provided more help, encouragement, structure, and suggestions about impulse control. Campbell attributed this maternal response to the hyperactive child's pattern of behavior.

Cunningham and Barkley (1979) repeated the Campbell (1973, 1975) experiments but added a drug and a placebo condition and an unstructured free-play activity. Their results were the same: The mothers of unmedicated hyperactive children imposed more structure and control on the child's behavior. With the medicated children the mothers were less directive and there were more positive reactions between the pairs.

Barkley (1978) described the role of the hyperactive child and how he contributes to the evolution of family disturbance. He found that typically fathers assert they do not have difficulty managing the child and feel the mother is too permissive, which results in marital arguments and often

divorce. Barkley (1978) added that the parents' response style may exacerbate the behavior problems.

Tallmadge and Barkley (1983) explored parent-child interactions of hyperactive children to determine whether there are differences between mothers and fathers in their behavior with their hyperactive children. Eighteen hyperactive and 18 normal boys were observed interacting with their mothers and fathers in a playroom setting during both free-play and task periods. These authors did not observe any overall differences between mother-child and father-child interactions. However, there were differences between parent-hyperactive child and parent-normal child in that parents of hyperactive children were more controlling in both free-play and task periods. The hyperactive children were less compliant and engaged in more negative and competing behaviors only with their mothers, when compared to mothers of normal children. A comparison of mothers and fathers interactions with their sons did not yield any significant differences. Finally, parents of hyperactive children became even more controlling during a task period. Tallmadge and Barkley (1983) summarize their findings by stating that while fathers and mothers did not differ in their interactions with their sons, hyperactive boys were generally less compliant and their parents more directive than normal parent-child dyads.

Mash and Johnston (1983a) examined parental perceptions of child behavior, parenting self-esteem, and mothers' reported stress in younger and older hyperactive and control children. Forty families with a hyperactive child and 51 families with nonhyperactive children participated. These authors found that, in comparison to parents of nonhyperactive children, "parents of hyperactives reported lower levels of parenting self-esteem, reported greater maternal stress, and perceived their children as more problematic" (p. 95). Mothers and fathers viewed themselves as less competent than parents of nonhyperactive children in regard to both their skill/knowledge in being good parents and also the degree of valuing/comfort attained from the parenting role. Additionally, both mothers' and fathers' self-esteem as parents and reports of maternal stress were related to how the parents perceived their child's behavior. This study did indicate that "fathers tend to view the problem as less severe than mothers" (p. 96). This study suggests that both parents be considered when designing treatment programs for hyperactive children.

Hartsough and Lambert (1982) surveyed 492 parents from a total of 5000 school age children to determine parents' feelings about their hyperactive child's impact on achievement press, provisions for general learning, parent-child

interaction, and family history and characteristics. These authors found "a strong negative and pessimistic perception by parents of their hyperactive child's academic-intellectual competence" (p. 284). Furthermore, this perception seemed to be associated with decreased aspiration levels for their children and a decreased desire to participate with the child in learning activities. In terms of parent-child interactions, parents of hyperactive children reported more disciplining interactions. This study provided general impressions of parents' perceptions of their hyperactive children and these authors maintain that further specialized research is needed in this area.

The above studies and research which examines the hyperactive child's effect on the family, which was discussed at length in the characteristics section, underscore the Bell and Harper (1977) framework which states that the temperament characteristics of the mother and father and hyperactive child all interact to determine the degree of harmony within the household. More specifically, the parents' behaviors serve as a stimulus to which the child responds. Similarly, the child's behavior acts as an antecedent which elicits various responses from the parents. The responses of the parent and child are further modified by the subsequent responses of the other

individual. Bell and Harper (1977) contend that it is the interactions of the parent and child which must be studied rather than the independent responses of each individual. This study has adopted their theoretical stance and it is assumed that all members of a family will act and react as a function of other family members' actions.

Sibling-Child Interactions.

This area has largely been ignored on both the clinical and research fronts (Ross & Ross, 1982). Ross and Ross (1982) assert that it is their "unsubstantiated opinion" (p. 398), that siblings contribute significantly to the hyperactive child's immediate difficulties, that is, self-esteem and duration of the disorder. Ross and Ross (1982) describe the siblings reaction to the hyperactive child's difficulties as "variously unkind, disparaging, hostile, antagonistic, and notably indifferent" (p. 398). These authors contend that the siblings deeply resent having a behavior-disordered child in the family and often the siblings tease the hyperactive child with the intent of provoking undesirable behaviors.

The primary researchers studying sibling interactions are Mash and Johnston. One study by Mash and Johnston (1982) included 23 hyperactive boys and 23 nonhyperactive boys, ranging in age from four to nine, and their mothers and

siblings. Observations were made in a laboratory-playroom situation of the following interactions: mother-target child, mother-sibling, target child-sibling, and target child-sibling with the mother present. The results showed that interactions of the hyperactive children were characterized by a higher rate of social conflict than were the nonhyperactive-sibling dyads. The hyperactive-sibling dyads showed high rates of negative behavior during play, with less conflict during the mother-supervised situations. In the mother-child interactions the hyperactive boys and their siblings initiated less interactions and showed more independent play than the nonhyperactive boys and their siblings. The mothers of the hyperactive boys were less responsive and interactive, and more negative than mothers of the nonhyperactive children, and these reactions extended to their interactions with the siblings. This phenomenon has been termed "spread of negative effect" in the hyperactive child's social environment (Barkley, 1978; Cantwell, 1979; Whalen, Henker, & Dotemoto, 1981).

Mash and Johnston (1983b) observed the interactions of 23 hyperactive and 23 normal boys with their siblings in an unstructured play and mother-supervised task situation. Mash and Johnston (1983b) found few behavioral differences between hyperactive children and their nonproblem siblings with both

showing high rates of negative behavior. In comparison to normal siblings, hyperactive sibling dyads showed significantly higher levels of conflict. Sex or ordinal position (younger versus older) of the sibling was unrelated to negative behavior in the hyperactive-child/sibling interaction. Maternal reports of stress and parenting self-esteem were related to the hyperactive child/sibling interaction. Positive social interaction between siblings was positively correlated with mothers' reported self-esteem. During the supervised-task situation, negative behavior in the hyperactive child dyad resulted in mothers' reports of child-related stress. Mash and Johnston (1983b) concluded that "the current findings suggest that more attention needs to be given to the study of sibling relationships in families of hyperactive children" (p. 98).

In this study, nonhyperactive siblings were included within the control group to see whether their perceptions of their own classroom behaviors (which should be normal and acceptable to teachers) were different from their hyperactive brothers. While Mash and Johnston's (1983) study indicates that both hyperactive children and their nonproblem siblings exhibit much negative behavior, it was verified through parent reports that the siblings did not manifest any psychological disorders such as conduct disorder, which would result in a

referral. Therefore, it is felt siblings were appropriate to serve as a control group for this study.

Peer-Child Interactions.

Parent reports (Battle & Lacey, 1972; Schleifer et al., 1975) and structured interviews (Campbell & Paulauskas, 1979) all concur that hyperactive children have more difficulty than nonhyperactive controls in initiating and maintaining close peer relationships. Ross and Ross (1982) attribute the poor peer adjustment to two related conditions, namely "social and emotional immaturity, and incompetency in the prerequisites for positive peer interactions" (p. 45). These authors contend that hyperactive children typically exhibit immature behavior which is perceived by their peers as undesirable, such as showing off and clowning. In addition, the hyperactive child seems to have a propensity for temper outbursts or genuine temper tantrums if his demands are not met immediately. These temper reactions and the unpredictability of his behaviors are not appealing for his peers who, according to Ross and Ross (1982), strive to maintain stability and predictability. Similarly, the hyperactive child attempts to dominate his peers who often reject him and the hyperactive child then uses more direct methods to gain attention, such as deliberately bothering other children, name-calling, and teasing. Campbell

and Paulauskas (1979) contend that an additional problem is that the hyperactive child is unable to understand the experiences and feelings of other people so that his perception of the effects of his negative behavior on others is minimal. The purpose of this study is to determine whether, within the classroom setting, this last statement is warranted. To date, there has not been any conclusive evidence to declare whether or not the hyperactive child is aware of his actions on others. An alternate explanation, proposed by Selman and Selman (1979) is that the hyperactive child has inadequate strategies for interacting with others so that his methods for initiating social interations are developmentally far behind the interaction norms of his same-age, same-sex peers.

Ross and Ross (1982) maintain that the second condition, that of incompetency in the prerequisites for positive peer interactions, "underlies the hyperactive child's peer problems" (p. 46). The hyperactive child has difficulty playing games because of his clumsiness and his attention deficit so that he loses interest in the game long before his peers and this is disruptive to the social interaction process. In addition, Ross and Ross (1982) declare that his incompetency "may also distort his intentions" (p. 46) in that he may genuinely be trying to be friendly and helpful. The effect of his actions

in the game situation is disruptive and his peers reject his presence. This is confusing to the hyperactive child who may or may not understand how this chain of events occurred.

Whalen et al. (1979) assessed the interactions between hyperactive boys and their nonhyperactive peers while playing a game called "Space Flight." These authors identified a number of specific behavioral difficulties from the hyperactive boys that resulted in the peer interaction process being unsuccessful. The behavioral difficulties included marked difficulty in forming and maintaining an appropriate task set, adjusting to and learning the game routines during the early stages of the task, and responding appropriately to tasks when changes in the routine of the game was required.

Whalen and Henker (1984) have commented on the lack of direct information from peers as compared to reports from parents and teachers. These authors recently had hyperactive and control boys in a summer school program complete peer evaluations at the end of three weeks. The boys were provided with behavior descriptors and asked to identify the classmate who fit the particular descriptor. Using these criteria, the hyperactive boys received many more negative evaluations than did their peers--from both hyperactive and nonhyperactive boys. In addition, the negative peer nominations of the

hyperactive boys correlated .64 with the teacher's classroom ratings when the boys were on placebo and .59 with nonparticipant observers who viewed a videotape of the interactions.

King and Young (1982) compared peer perceptions between hyperactive and high active but normal boys. Peer perceptions were revealed by use of a game which distinguished between the number of positive and negative role assignments, and like-dislike nominations. King and Young (1982) found that "regardless of the sociometric measure, hyperactive children were perceived more negatively by their peers than active but normal boys" (p. 473). In addition, hyperactive children had "fewer reciprocal peer friendships" (p. 474).

Ross and Ross (1982) have proposed a cycle which may result from peer rejection:

> diminished self-esteem--inappropriate efforts to gain a place in the peer group--more peer derogation and rejection--further curtailment of normal social interaction--reduction of opportunities for developing acceptable patterns of behavior. (p. 46)

This cycle, according to Ross and Ross (1982), may result in the development of secondary symptoms, such as "poor self-esteem, defiance, and sadness" (p. 46). It is evident

that the hyperactive child in middle childhood has marked difficulties establishing and maintaining positive peer relationships and this is an area that warrants further research.

Classroom Interactions.

The hyperactive child has difficulty conforming to classroom constraints and routines. Hyperactive boys are more active than high-active boys (Klein & Young, 1979; Whalen et al., 1979). Klein and Young (1979) have speculated that it is the combination of high activity level and high disruptive behavior that makes the hyperactive child difficult for the teacher to handle. Numerous researchers (Klein & Young, 1979; Whalen et al., 1979; Whalen et al., 1981) have demonstrated empirical support for the disruptive effect of the unmedicated child on the classroom. The hyperactive child has a shorter attention span than other classmates, attempts to gain teacher attention at inappropriate times, is impulsive, and has frequent energy bursts and spontaneous verbalizations. Whalen et al. (1979) compared hyperactive boys on placebo with their nonhyperactive peers and found a number of disrupting behaviors from the hyperactive boys: high rates of gross motor movement, regular and negative verbalizations, noise making, physical contact with classmates, overtures to other children, energetic

responding, and unexpected acts. Ross and Ross (1982) state that the hyperactive child's impulsivity is irritating to the teacher because:

> he does not seem to care about his mistakes; his hand is often the first to be raised in answer to a question, and the answer is almost always incorrect. Teachers are seldom tolerant of this behavior....Sometimes the hyperactive child welcomes even this negative behavior, because it is the only peer attention that he gets, and then makes a game of giving wrong answers. Once the teacher sees this behavior as intentional she comes to resent the interruptions and misbehavior, an attitude that is soon transmitted to the other children, with the result that school becomes an increasingly intolerable experience for him. (p. 44)

The effect on the teacher is to make her more intense and controlling of the hyperactive child (Whalen et al., 1981). These authors reported that the teacher reprimands him more often and his presence within the classroom increases the amount of negative feedback from the teacher to other nonhyperactive children.

Campbell et al., (1977) have stated this is an interactional process whereby the hyperactive child creates

changes in his behavior settings, which in turn have an effect on his own subsequent behavior. This cycle can be explained in that the child's negative behaviors elicit controlling behavior from the teacher. The child, however, acts more appropriately when he is in charge and can dominate the situation. In such a situation the teacher becomes more intense and controlling which leads to the hyperactive child becoming more restless and noncompliant so that his behavior deteriorates further, leading to more intensive controlling action from the teacher. This phenomenon has been demonstrated in a study by Peter, Allen, and Horvath (1983) in which they studied hyperactive children's self-perceptions of teacher acceptance and demand. These authors found the hyperactive boys perceived less acceptance and greater demand from teachers than did their nonhyperactive peers. Hyperactive boys saw greater teacher disapproval directed toward them. Peter et al. (1983) postulated that the "hyperactive children's view of greater power exerted over them may represent their own faulty perception brought into the classroom, or it may represent a typical teacher response as experienced by them" (p. 239).

Whalen et al. (1979) stated that much of the hyperactive child's behavior is distinguishable from his nonhyperactive peers in terms of the overabundance of activities rather than

the activities per se. He simply talks louder, faster, and more than his peers, and is noisier, intense, and dominating. These authors contend that when he attracts others with his negative behaviors, he does not know when to stop and he fails to perceive that continued repetitions of these negative behaviors are inappropriate.

In a review of the literature, Whalen and Henker (1984) reported that hyperactive boys experience more difficulty communicating than did their nonhyperactive peers. In particular, the hyperactive boys do not seem to benefit from "vicarious learning experiences" (p. 404) such as watching another child play a game and then learning from this child's mistakes. These authors also report that hyperactive boys do not engage in "role appropriate behaviors" (p. 404) when learning and playing a game. Thus, Whalen and Henker (1984) suggest that "hyperactive boys do not readily modulate their behaviors in accord with shifting external cues" (p. 404). These authors are presently conducting studies to determine whether the hyperactive child is less attentive to social cues, is unconcerned with social appropriateness, or lacks the skills to act appropriately in social circumstances.

Whalen and Henker (1984) have recently studied behavioral intensity, defined as "action patterns that show high energy

expenditure actions that are forceful, effortful, loud, fast, vigorous, or strained. Intense acts demand attention" (p. 404). These authors have found that the "situational context" (p. 404) may be of prime importance. For example, when on placebo hyperactive boys were more intense when required to complete worksheets by listening to an audiotape, filling in the missing information, and working the problems on cue. When provided with all the information and required to complete the worksheets at their own pace, hyperactive boys were less intense regardless of whether they were on medication or placebo. Whalen and Henker (1984) contend that more studies are required which distinguish between situations in which troublesome behaviors of hyperactive children are most and least likely to appear.

Throughout the literature on hyperactivity there is a proliferation of vague statements which imply the hyperactive child is not aware of how his negative actions affect significant others. Thus, the purpose of this study was to investigate whether the hyperactive child within the classroom setting is aware of his actions.

Hyperactive Child as an Informational Source

Whalen, Henker, Dotemoto, & Hinshaw (1983) studied child and adolescent perceptions of normal and atypical peers. In

reviewing previous studies, they commented that "children are earning increasing respect as discerning observers and predictors of the behaviors of their peers" (p. 1588). They state that children are active processors of social information and while they are able to skillfully decode interpersonal cues, they can also integrate this information into meaningful strategies for analyzing human behavior (Barenboim, 1981; Heller & Berndt, 1981; Rotenberg, 1980; Whalen et al., 1983). The hyperactive child as an informational source has largely been ignored and Ross and Ross (1982) contend that "the subjective view is a topic warranting serious study" (p. 395).

Hyperactive Child's Self Perceptions About His Condition.

The only study which directly asked children how they feel about their condition was done by Stewart et al. (1973). They "focused on the agreement between the children's descriptions of themselves and the reports of their parents, and how the children generally felt about themselves" (p. 3). These authors interviewed 81 children who were between the ages of 12 to 16. The hyperactive children were interviewed in a structured manner and asked questions which related to symptoms of hyperactivity, school performance, self-esteem, and their social life. The hyperactive children reported they were "restless, impulsive and easily upset, had difficulty

concentrating, and had difficulty finishing tasks" (p. 4). The authors contend many of the subjects had symptoms of low esteem. In general, subjects and mothers agreed on the hyperactive behaviors that the adolescents exhibited although subjects reported a given symptom as occurring fewer times. Subjects and mothers disagreed about the hyperactive adolescent's popularity with mothers stating that their child had poor social interactions with his peers and teachers. Stewart et al. (1973) attribute this discrepancy to the issue being "too sensitive for the subjects to face objectively" (p. 10). This study has serious shortcomings in assuming that the child's perceptions of his behavior are accurate only if his mother agrees with them. If the child and his mother have differing opinions about his condition, this should be regarded as an area to be addressed when implementing treatment rather than blindly assuming the adolescent has faulty reasoning.

Taylor (1980) has documented the seven most unpleasant concerns that hyperactive children have:

> an awareness of being driven, a confusion and denial about the hyperactivity, an awareness of feeling attacked, an awareness of feeling rejected, an awareness of being a brat, an awareness of being angry toward others, and an awareness of being angry about himself. (p. 69)

Taylor (1980) has developed this list from personal experience

with hyperactive children and empirical study is necessary to validate this list.

Waddell (1984) compared the self-concept and social adaptation of 30 hyperactive adolescents (mean age 14.5) with 30 control subjects. All subjects were administered the Tennessee Self Concept Scale (TSCS), Social Anxiety and Distress Scale (SAD), Fear of Negative Evaluation Scale (FNE), and the California Psychological Inventory (CPI). Waddell also interviewed the subjects. Results from the TSCS indicated that hyperactive adolescents were "defensive, and that their overall level of self-esteem is low" (p. 54). Waddell (1984) concluded that these adolescents view themselves as "adequate" (p. 54). Results from the SAD and FNE indicated there were no significant differences between hyperactive and control adolescents. Results from the CPI and interview data indicated that hyperactive adolescents "had little self-confidence, anticipated failure, avoided social participation, possessed little self-discipline, and were unwilling to face interpersonal demands" (p. 53). Results from this study indicate that hyperactive adolescents have low self-esteem and this area warrants further investigation.

Medication Regimen.

Whalen and Henker (1984) have commented that relatively little attention has been focused on how a child's medication affects his teachers, family, and peers. These authors referred to previous studies which indicated that when hyperactive children take methylphenidate, they appear more attentive and responsive and, likewise, the mothers tend to be "more positive, less critical, and less directive" (p. 414). Whalen and Henker (1984) examined the medication-related changes within the classroom. These authors conducted a series of four quasi-naturalistic classroom experiments in which ambient noise and task difficulty were systematically varied. Twenty-two hyperactive boys and 39 comparison boys between the ages of 7 to 11 participated in these studies. A standard crossover paradigm was used in which half of the hyperactive group took their regular doses of methylphenidate between Experiments 1 and 2 and placebos before Experiments 3 and 4, while the other half took the placebos before the first two studies and methylphenidate before the last two. In all of these classroom studies, the teacher's intensity and use of control contacts decreased when the child was placed on medication. The teachers were blind to diagnostic and medication status. These studies provide strong evidence that medication affects the interaction patterns between the

hyperactive child and his parents and teachers.

Baxley et al. (1978) interviewed 26 boys ranging in age from 6 to 16 about their knowledge of drug treatment and attitudes toward it. All the boys were currently on stimulant medication and had been on this regimen from 6 to 85 months. This study has been criticized (Ross & Ross, 1982) for serious methodological weaknesses, that is, the questionnaire is badly constructed and the group is too heterogeneous to support a sample of 26 subjects.

Sleator et al. (1982) followed a group of hyperactive children for eight years to determine their feelings toward stimulant treatment. The 52 subjects were 8 years of age or older and had received stimulant medication for at least one year. These authors asserted that "above all else, we found a pervasive dislike among hyperactive children for taking stimulants" (p. 478). Since the authors were unable to provide an explanation for the adolescents dislike for taking stimulants, they indicate that one cannot assume their findings are "an example of a uniform pattern of responses" (p. 478) and encourage researchers to ask children why they have such a strong dislike for taking medication.

Cohen and Thompson (1982) interviewed fifteen hyperactive children and their mothers regarding their knowledge, perceptions, and attitudes toward methylphenidate treatment.

Both children and mothers reiterated "the explanation of the clinic physicians" (p. 41) when asked about their knowledge and perceptions of medication. Cohen and Thompson (1982) found that initially mothers' attitudes toward medication were "mixed or negative" (p. 41) but presently mothers felt medication was successful and were therefore staying with the regimen. Cohen and Thompson (1982) found 60 percent of the children "did not like taking medication" (p. 41) but would continue with the regimen because of their perceived negative consequences should medication be stopped. These authors concluded that children are not simply reiterating the views of significant adults but genuinely "feel better about themselves" (p. 41-42) and "see themselves as more in control of the consequences of their behavior than at the onset of treatment" (p. 42).

Whalen and Henker (1984), however, speculate that the hyperactive child on medication may feel different from his peers and that he is exempt from acting in an age-appropriate manner. These authors contend that family and teachers reinforce this notion so that "the child's perceptions of his own efficacy and his sense of responsibility for events and outcomes" (p. 412) are altered. The hyperactive child may attribute his successes and/or failures to his medication rather than to his own skills and efforts. Whalen and Henker (1984) recommend that the hyperactive child receive credit for

his academic and social successes so that he retains control for the successes and failures.

The children who participated in this study were asked their viewpoints on their medication regimen and the reasons for their stance.

Need For and Validity of Determining Children's Perceptions

Previous and current researchers have made blanket statements indicating hyperactive children are unable to understand the affect of others so these children cannot generalize across situations. Such statements seem based on intuitive reasoning rather than empirical investigation and generalization to other hyperactive children is unwarranted. Therefore, this exploratory study on childrens' awareness of their classroom behaviors was undertaken to provide an empirical basis of hyperactive childrens' self-perceptions.

There is little information on what the hyperactive child thinks about his condition. Stewart et al. (1973) express the more prevalent doubts about the validity of self-report data from children: "There would be some doubt as to the validity of comments made by school-age children about their behavior and reactions to treatment, but it seems an important field to explore..." (p. 3).

Langhorne, Loney, Paternite, & Bechtoldt (1976) point out the fact that if the child's view does not concur with the viewpoints of his parents, teachers, and peers, this is not grounds for ignoring it. What is important are the hyperactive child's perceptions of the situation. If the child's perception of the situation is unrealistic or inaccurate, this does not invalidate his feelings but clearly demonstrates that corrective measures must be undertaken to help him identify the parts of the situation that are important and interpret them correctly. Sulzbacher (1975) contends that information offered by the child should be viewed as important in and of itself rather than determining the extent to which it is consistent with his parents and teachers viewpoints.

Clinicians, parents, and teachers all make daily decisions regarding the hyperactive child's lifestyle and to date, there is no empirical base which documents the child's feelings about his condition. We may be making decisions based on incomplete data because we have not determined whether the hyperactive child is able to see his negative behaviors as affecting others. Thus, parents and teachers remain uncertain as to whether they are dealing with a child who is aware or unaware of his behaviors as negatively affecting others. Ross and Ross (1982) contend that this is an area that warrants serious study

so that significant others can react appropriately to the hyperactive child's condition.

In addition, we must ask children their viewpoints on taking medication if we contend that the hyperactive child must feel in control to retain responsibility for his actions. We must discern how the child feels about his condition, including his medication regimen, and what steps the child feels are necessary and appropriate in managing his condition. Thus, it is necessary for adults working with the hyperactive child to be aware of the child's feelings about his condition and stimulant medication.

CHAPTER 3

Methodology

The methodological considerations and details of this study are specified in this chapter. First, a description of the sample and sampling procedures will be outlined, followed by a description of the measuring instruments. Next, the design and data collection procedures will be described. Finally, the data analysis will be presented.

Population and Sampling Procedures

Five boys served as subjects in this study; three were diagnosed as hyperactive and two served as controls. These subjects were obtained by contacting approximately twenty paediatricians and psychiatrists over a nine month period. It was interesting to note that in view of the hyperactivity prevalence rate of 3 to 5 percent of school-age children, only three boys were referred over this time period. Criteria for acceptance included the following: primary diagnosis of hyperactivity by the child's physician; low-average to above-average intellectual functioning; no evidence of severe emotional disturbance; absence of acute family distress; treatment with a stable dosage of methylphenidate for at least 2 months; no concurrent treatment with other psychotropic drugs; boys between 7 years to 12 years of age. These acceptance

criteria were based on the diagnostic criteria in DSM III which are accepted to be indicative of attention deficit disorder with hyperactivity. Physicians in the lower mainland of Vancouver did not consider aggression in their diagnosis; thus it was not used as a variable in this study. It was felt by this author that children below 7 years of age would not be able to fully understand the vocabulary used in the Q-sort, thus 7 was the lower age limit.

Ross and Ross (1982) have commented that numerous studies have methodological weaknesses because they select a sample on "etiological preconceptions" (p. 49) such as only selecting hyperactives on the basis that they be stimulant drug responders. These authors recommend that the following criteria be used for subject selection: "identification of the child as hyperactive by three defining systems (home, school and physician), measures of the child's home and school behavioral characteristics and any hyperactive symptoms of long standing" (p. 49).

Subjects resided in the lower mainland of Vancouver, British Columbia. These boys came from a middle class background with some variation in socio-economic levels. Parental consent to participate in the study was obtained prior to interviewing the child. One parent per family completed the

behavior checklist to confirm the diagnosis.

Description of Measuring Instruments

The instrument used by parents to describe their hyperactive child in this study was the Werry-Weiss-Peters Activity Scale (Werry, 1968). It was used as a method of comparing the child and parent report. The Peabody Picture Vocabulary Test-Revised (1981) was administered to all subjects to obtain a measure of hearing vocabulary and thus one facet of general intelligence. A description of each instrument follows.

Werry-Weiss-Peters Activity Scale.

This parent rating scale was developed by Weiss and her associates (Werry, 1968). It was originally intended for use by clinicians in interviewing parents. However, it is now used extensively for parent ratings (Ross & Ross, 1982). The scale consists of seven categories which ascribe a level of activity for the child. The first five categories (mealtime, watching television, doing homework, playing, sleeping) are measures for specific types of activity; the last two categories (behavior away from home excluding school, and school behavior) describe general areas of activity. The parent is instructed to rate the items on a continuum from No (Not at all) to A little bit and finally to Very much. Barkley and Cunningham (1979) correlated rating scores from the Werry-Weiss-Peters and the hyperactivity

index of the Conners Parent Questionnaire with objective measures of mother-hyperactive child interactions. The results showed that measures of child noncompliance and maternal commands correlated highly with the rating scale. Correlations between .40 to .70 were attained depending on whether the observational data were based on free play or supervised task periods. Ross and Ross (1982) describe this instrument as "a measure of inappropriate activity rather than of total activity and as such is useful in the assessment of hyperactivity" (p. 143).

This rating scale was used by parents to assess the relative level of problematic behavior of their children.

Peabody Picture Vocabulary Test-Revised (PPVT-R).

The PPVT-R was developed and revised by Dunn and Dunn (1981). This test was devised to provide a measure of a subject's receptive (hearing) vocabulary for Standard American English (Dunn & Dunn, 1981). Another function is to provide a quick estimate of verbal ability, which is accepted as being the best indicator of school success and as a limited measure of general intelligence (Dunn & Dunn, 1981).

The PPVT-R is a norm-referenced test, which allows comparisons of individuals against the sample of children on which it was normed. The PPVT-R was standardized on 4200

children and youths using stratified sampling procedures. A total of 200 persons were included within each of 21 age groups. The sample was stratified according to chronological age and sex balance, geographic representation, occupation, ethnic representation, community size, and different forms. The PPVT-R was standardized for both age and grade norms so that an individual's score may be compared with a large group of persons of the same chronological age and/or a group of persons in the same grade.

Three deviation-type age norms are reported: standard score equivalents, percentile ranks, and stanines. Age equivalents are also provided. Error of measurement bands are included for each age group. The manual provides instructions for determining basal and ceiling guides. In addition, starting points are provided for general guidelines to maximize test-taking time efficiency, as determined by the child's age. Rapport (1983) reviewed a number of studies within hyperactivity and applied outcome research and consistently recommended that studies in hyperactivity must include some measure of intelligence for generalizability reasons. In particular, the PPVT-R was administered in a number of studies and Rapport (1983) felt this test provided a valid estimate of the child's verbal ability. Thus, the PPVT-R was administered so that low

intellectual abilities were not a confounding factor. Only children with a standard score of 85 or above were included in this study, that is, children with average or above-average verbal abilities.

Design and Data Collection Procedures

This study was designed to determine whether the hyperactive child is able to recognize his characteristic behaviors within the classroom setting as affecting significant others in an adverse fashion. Parents completed the Werry-Weiss-Peters Activity Scale which confirmed the diagnosis of hyperactivity and they also provided background information informally about their child's activities. The children completed the Q-sort and underwent a structured interview for purposes of clarifying their perceptions about their behaviors and the hyperactive children also completed a questionnaire which pertained to their medication regimen.

Selection of the Items for the Q-sort.

A review of the literature which included childrens', parents', teachers', clinicians', and physicians' descriptions of hyperactive children's behaviors within the classroom was undertaken. A wide variety of statements and opinions about typical behaviors elicited from children classified on a continuum ranging from normal to high activity to hyperactive was collected and, after editing, these provided approximately

fifty items, each describing one unique characteristic behavior.

A pilot study was then conducted to verify the sentences as being representative of the children's behaviors and to ensure the sentences were understandable to the children. In addition, the pilot study was undertaken to determine whether hyperactive children could tolerate the time and format of a Q-sort. It took the subjects approximately twenty minutes to complete the task. Subjects in the pilot study included one child diagnosed as hyperactive and two children who did not present any major behavioral difficulties, that is, children who were representative of a control group. Their responses and opinions were evaluated; some items were revised so that their meaning was significant to children within that age group. The researcher found hyperactive and control children understood and enjoyed the task. It appears that the Q-sort is a useful instrument for describing children's awareness of their classroom behaviors.

The sample was reduced to 38 items by removing ambiguous and duplicate items. The hyperactive child in the pilot study completed the Q-sort which had 38 items; no revisions were necessary. A structured Q-sort was composed by ensuring that half the items were representative of hyperactive children's behaviors and the other half of the items were typical of the

average child's behaviors, as represented in the literature. A list of the sample of 38 items is recorded in Appendix I.

The Q-sorts.

The 38 items in the item sample were printed on cards, one item to a card. The Q-sorts therefore involved the sorting of a deck of 38 cards into a specified number of piles or categories.

Subjects were initially instructed to read all the cards to attain a mind set for this task. They were then asked to divide the 38 items into three piles: Most Like Me, Neutral, and Least Like Me. A board which had squares for all 38 items and had been designed to represent a pseudo-normal distribution was provided so the subject could rank order items from each pile along a continuum of Most Like Me (Category 10) to Least Like Me (Category 1). The required distribution of items between the categories is shown in Table 2. Subjects were instructed not to rank the items within each category.

Table 2

Distribution of Items in Q-sort and Item Scores

	Most Like Me									Least Like Me
Category	10	9	8	7	6	5	4	3	2	1
Number of Cards in Category	1	2	3	5	8	8	5	3	2	1
Category Score	10	9	8	7	6	5	4	3	2	1

The Structured Interview.

A structured interview was conducted to obtain further information on the children's awareness of their behaviors. A copy of this interview questionnaire is included in Appendix E. In addition, the hyperactive child's feelings about taking medication was explored. A copy of this interview questionnaire is included in Appendix F.

Administration of the Q-sorts, Structured Interviews, and PPVT-R.

The researcher visited each subject and conducted and supervised all Q-sorts personally to ensure a more consistent presentation of instructions (Appendices C and D) and to encourage a more genuine effort by the subjects. First, the Peabody Picture Vocabulary Test-Revised was administered, then the Q-sorts, and finally the structured interviews.

Scoring the Items.

Each item in the Q-sort was assigned a score and this was recorded on a master sheet (Appendix I). Items in Category 1 (Least Like Me) received a score of 1, those in Category 2, a score of 2 and so on to the items in category 10 (Most Like Me), which received a score of 10. (see Table 2).

Analysis of the Data

An intercorrelation matrix was first formed by correlating

each person's sort of items with every other person's sort of items.

The resultant matrix was factor analyzed, so that persons were variables and items were observations. The principal factors were submitted to varimax rotation for ease of interpretation (Boldt, 1980).

Each rotated factor corresponded to a single person. The factor loadings were a measure of each person's correlation with each of the factors. The higher a person's loading on the factor the greater the correlation between that individual and other individuals who answered similarly.

Item responses were then analysed to establish a hierarchy of item acceptance (from Most Like Me to Least Like Me) for each factor. For each factor the weighted item scores of all the individuals comprising the factor population were summed, item by item, to give an item array of weighted responses for each factor. The raw scores on the items in the arrays were converted to z-scores for purposes of comparison and the resulting item-scores ordered. This provided a hierarchy of item acceptance for each factor. Differences between item z-scores for the different types were used to differentiate between the factors. A difference of 1.0 in z-scores for an item was considered significant.

The principal components analysis was used to determine if the two groups (hyperactive versus control children) load substantially on different factors. The Q-analysis was incorporated to qualitatively describe the differences between the two groups. The interview was used to support the validity of the sorting process and to collect further information which may clarify which items distinguish hyperactive and control children.

CHAPTER 4

Results

This chapter presents a principal components solution to the problem of whether hyperactive children recognize their characteristic behaviors within the classroom setting as affecting significant others in an adverse fashion. Similarly, normal children's responses are examined to see whether they differ from the hyperactive children's responses. Statements which differentiate hyperactive children from normal children are identified and discussed. In addition, hyperactive children's descriptions about how medication affects their behavior and the child's feelings towards being on stimulants are presented.

Results of Factor Analysis

Q-scores for the subjects, hyperactive and control, were assembled into an item x subject data matrix in which the columns were distributions of Q-scores for individual subjects (see Appendix J). Correlations between columns were computed and the resulting Pearson product moment correlation coefficients arrayed in a subject x subject matrix of intercorrelations. This intercorrelations matrix was subjected to factor analysis. Five factors were selected on the basis of the magnitude of the latent roots and rotated to varimax rotation. Table 3 gives the rotated factor structure for the five factor solution.

Table 3

Rotated Factor Structure of Five Factors Corresponding to the Five Largest Values of the Latent Roots

Subject*	F1	F2	F3	F4	F5
1H1	.10	.03	- .99*	- .06	.10
2H2	- .03	- .99*	.03	- .08	- .04
4H3	.97*	.03	- .11	- .11	.19
3C1	.10	- .08	- .07	- .98*	.11
5C2	.19	.04	- .10	- .12	.97*

*Explanation of Code: H=Hyperactive; C=Control.

Each factor, F1, F2, F3, F4, and F5, represents a grouping of subjects around a common pattern of sorting items. Hence, each individual in this study sorted the items uniquely. The coefficients given in Table 3 represent the degree to which the subjects' sort of items were associated with the five different viewpoints. Subjects were placed in the factor in which they had the highest factor coefficient or loading.

The sorting pattern of the items which is associated with each person's awareness of his behaviors within the classroom setting was then determined. The factor loading of each subject was used to weight the subject's item scores. For each factor,

the weighted item scores were then summed, item by item. The totals were arrayed in an item x factor matrix. The columns of scores in this matrix are referred to as factor arrays. To facilitate comparison of the factor arrays, the scores were transformed to standardized scores or z-scores. The factor arrays of z-scores for the five factors are given in Table 4.

Table 4

Factor Array of Item z-Scores

Item*	F1	F2	F3	F4	F5
1 (Bother)	-0.25	-0.25	-0.25	-0.75	-0.25
2 (Wait)	-1.24	-1.24	-0.75	-0.75	0.25
3 (Listen)	-1.24	0.25	1.74	0.25	-0.25
4 (Think)	-0.75	-0.25	0.75	-0.25	-0.75
5 (Get Attention)	-0.75	2.24	-0.25	-0.25	-0.75
6 (Expectations)	-0.25	0.75	-0.75	-0.25	0.75
7 (Hit Friends)	-1.74	-0.25	-2.24	-0.75	-0.75
8 (Fights)	-1.74	1.74	-1.75	0.75	-1.24
9 (Angry)	-0.75	-0.25	0.75	-1.74	0.25
10 (Run)	-0.25	-1.24	-0.25	0.25	-0.75
11 (Boss Others)	-0.75	0.75	0.75	0.25	0.25
12 (Brag)	0.25	1.24	-1.24	0.75	-2.24

(table continues)

Item	F1	F2	F3	F4	F5
13 (Tease)	-0.25	0.25	-1.74	-1.24	-1.74
14 (Exaggerate)	-1.24	-1.74	-1.24	0.25	-1.24
15 (Noise)	-2.24	-0.25	0.25	1.24	0.25
16 (Friendly)	1.74	0.75	0.25	1.74	1.74
17 (Finish Projects)	1.24	-0.75	0.75	0.75	-0.25
18 (Younger Peers)	0.25	1.74	-0.75	-1.74	-0.75
19 (Popular)	1.74	-2.24	0.25	-0.75	0.75
20 (Less Active)	0.25	-1.74	-0.25	-1.24	0.25
21 (Learn Material)	0.25	-0.75	-0.75	1.24	1.24
22 (Agreeable)	0.75	0.25	-1.24	-1.24	1.24
23 (Leader)	1.24	-0.25	0.25	-0.75	0.75
24 (Work With Others)	0.75	0.25	-0.25	0.25	1.24
25 (Nice to Teacher)	0.75	-1.24	0.25	1.24	1.74
26 (Blame Myself)	0.25	0.25	1.24	-0.25	0.75
27 (Borrowing Things)	0.25	1.24	1.24	0.75	2.24
28 (Temper)	0.75	1.24	0.25	0.75	0.25
29 (Clumsy)	-0.25	-0.75	0.75	-2.24	-1.74
30 (Pay Attention)	0.75	0.25	1.74	-0.25	0.25
31 (Out of Desk)	-0.25	0.75	-0.25	-0.25	0.25
32 (Games)	-0.25	-0.75	2.24	-0.25	-1.24

(table continues)

Item	F1	F2	F3	F4	F5
33 (Not Listen)	-0.25	0.75	0.25	0.25	-0.25
34 (Work Alone)	-0.75	-0.25	-0.25	0.25	-0.25
35 (Helpful)	0.25	-0.25	0.25	0.25	-0.25
36 (Obey)	1.24	0.25	1.24	2.24	-0.25
37 (Well Behaved)	2.24	0.25	-0.25	1.74	-0.25
38 (Cause Trouble)	0.25	-0.75	-0.75	-0.25	0.75

*The full description of the items are listed in Appendix I.

The z-scores in each array, F1, F2, F3, F4, and F5, were then ordered according to size and direction (+, -). Only the six items having the highest positive scores and the six items having the highest negative scores in each array were used for comparing the subjects. This number was chosen because on the basis of behavioral observations, the researcher felt these items were deliberately picked by the subjects. Past this point, it seemed that subjects tended to arbitrarily pick an item, sometimes on the basis that this item was close to the last item. The twelve items in each factor array, selected according to this criterion, are presented in Table 5. (See Appendix I for the written statements which accompany the numbers.)

Table 5

Differentiation Between Factors 1, 2, 3, 4, and 5 in Terms of the z-scores of Six Most Important (Positive) Items and the Six Least Important (Negative) Items

Z-score	F1 H1*	F2 H2	F4 H3	F3 C1	F5 C2
2.24	37	5	36	32	27
1.74	19	18	37	30	25
1.74	16	8	16	3	16
1.24	36	28	25	36	24
1.24	23	27	21	27	22
1.24	17	12	15	26	21
-1.24	14	25	22	22	32
-1.24	3	10	20	14	14
-1.24	2	2	13	12	8
-1.74	8	20	18	13	29
-1.74	7	14	9	8	13
-2.24	15	19	29	7	12

*Explanation of Code: H=Hyperactive; C=Control

In examining the six Most Like Me (positive) items across factors or subjects, it is appropriate to look for common items that two or more subjects picked. The following items were

picked by both Subject H1 and Subject H3 (both hyperactive boys):

37 - The teacher says I am well-behaved.

16 - I am friendly.

36 - I do what I am told.

Item 16 was also picked by Subject C2 (normal boy). Item 36 was also picked by Subject C1 (normal boy). Subject H2 (also hyperactive) did not pick any items that the other hyperactive boys chose.

The following item was picked by Subject C1 and Subject C2 (both normal boys) and Subject H2 (hyperactive):

27 - I ask others before borrowing their things.

On the basis of these results of Most Like Me items, it can be surmised that hyperactive and control children do not group into two distinct factors. In fact, the hyperactive boys in this study saw themselves as friendly, well-behaved, and obedient children. When compared to teacher, parent, peer, and clinical reports, which state that hyperactive children pose multiple behavioral difficulties within the classroom setting, it can be concluded that these hyperactive boys do not see their behaviors as different or anxiety-producing to significant others. However, it may also be true that some hyperactive boys see themselves as similar to normal children and other hyperactive boys perceive their behaviors as different from

their peers. (This proposal will be addressed when each boys' profile is presented and discussed.)

In examining the six Least Like Me (negative) items across factors or subjects, it is again appropriate to look for common items that two or more subjects chose. The following items were picked by both Subject H1 and Subject H2 (both hyperactive boys):

14 - I often exaggerate or make up stories.

2 - I get in trouble when asked to wait.

Item 14 was also picked by Subjects C1 and C2 (normal boys). Subject H3, also hyperactive, did not pick any items that the other hyperactive boys chose.

The following items were picked by Subject C1 and Subject C2 (both normal boys):

12 - The teacher says I brag to other children.

13 - I like to tease my friends.

8 - I get into more fights than my friends.

Item 8 was also picked by Subject H1 (hyperactive boy). Item 7 (I hit my friends when they bother me.) was picked by Subject H1 (hyperactive) and Subject C1 (normal).

On the basis of these results of Least Like Me items, hyperactive and control children did not group into two distinct factors. Again, hyperactive boys did not see their behavior as different from normal boys. As mentioned earlier, it may be

necessary to view each child as a distinct entity and determine his awareness of his classroom behaviors individually.

Q-Analysis

In attempting to answer the problem statement on the hyperactive and normal child's awareness of his classroom behaviors, the Q-analysis highlights the items that are unique to each subject and those items which are similar across subjects. Each subject's profile will be presented as a case study. As mentioned earlier, the researcher felt the sorting of the first six items on both ends of the Q-sort were a valid representation of the subject's awareness of his classroom behaviors. Beyond this point, the subjects appeared to randomly choose the nearest item to the last item picked. Thus, only these items are presented and discussed. The difference between z-scores for each item that was considered significant was '+' or '-' 1; only these scores are presented and the corresponding items discussed (see Appendix K). The Werry-Weiss-Peters Activity Scale (Appendix H), which was completed by one parent, is presented to confirm the diagnosis of hyperactivity and also to support or refute the subject's Q-sort. However, it must be stressed that the parent's agreement about the child's perceptions of his behaviors was not important; the parent completed this checklist only to provide supplementary data.

The qualitative interviews (see Appendix E) that were conducted with the hyperactive and control children are incorporated in these case studies. A brief interpretation is provided to conclude each case.

Subject H1 (D.J. - Hyperactive).

D.J., a hyperactive boy, was 8 years, 2 months old at the time of the interview. He obtained a standard score of 93 on the Peabody Picture Vocabulary Test-Revised, which placed him in the average range of scores for his hearing vocabulary level.

D.J. presented himself as a confident, verbal child with a positive self-image. He was not overly active and gave his full attention to the tasks. He explained his answers succinctly and appeared relaxed throughout the entire interview.

D.J. sorted the first six Most Like Me items in the following manner:

Z-score	Item	Statement
2.24	37	The teacher says I am well-behaved.
1.74	19	My classmates like me.
1.74	16	I am friendly.
1.24	36	I do what I am told.
1.24	23	I like to be the leader in a game.
1.24	17	I finish things that I start.

When asked to elaborate on his answers, D.J. responded that

he is "good, doesn't make noise" in the classroom. He said he is "nice" to his classmates and they like him. He concluded by asserting he does not "do much wrong."

D.J.'s Most Like Me statistically significant answers are most similar to D.Y. (H3), another hyperactive boy. They both agreed they are well-behaved, friendly, and do what they are told. D.J. agreed with J.C. (C2), a control boy, that he is friendly and with M.P. (C1), a control boy, that he does what he is told.

D.J. sorted the first six Least Like Me items as follows:

Z-score	Item	Statement
-2.24	15	The teacher says I make more noise that my classmates.
-1.74	7	I hit my friends when they bother me.
-1.74	8	I get into more fights than my friends.
-1.24	2	I get in trouble when asked to wait.
-1.24	3	I find it hard to listen to the teacher when there is noise in the room.
-1.24	14	Others say I exaggerate or make up stories.

When discussing these answers, D.J. said "everyone else makes noise, not me." He replied that he "doesn't like" much noise. He asserted that he does not hit his friends and "everyone likes me." D.J. responded that when asked to wait, he

does so and does not cause trouble. Finally, D.J. replied that he does not make up stories.

D.J.'s Least Like Me statistically significant answers were similar to D.P. (H2), a hyperactive boy, in that they feel they do not exaggerate or make up stories and do not get into trouble when asked to wait. D.J. answered similarly to both M.P. (C1) and J.C. (C2), control boys, in that they do not exaggerate or make up stories, do not get into more fights than their friends, and do not hit their friends when they bother them.

In examining the difference between z-scores (Appendix K) for each item across subjects, it can be summarized that D.J. has a positive viewpoint about his classroom behaviors. Unlike Subject H2 (hyperactive boy), D.J. felt he is well-liked by his classmates, is well-behaved, is nice to the teacher, friendly, does what he is told, does not hit his friends or engage in more fights than his friends, does not make more noise than his classmates, and does not attempt to engage the teacher's attention more than his friends. The difference between D.J. and Subject H3 (hyperactive boy) was that D.J. again felt he is well-liked by his classmates, is not clumsy, is as active as his friends, does not engage in more fights than his friends, and does not make more noise than his classmates. In examining the differences between D.J. and Subject C1 (control), D.J. felt he

is well-behaved whereas the control boy was neutral on this item, D.J. felt he usually agrees with his friends, D.J. was neutral about teasing his friends, D.J. felt his classmates like him and he is friendly whereas the control boy was neutral, and D.J. felt he does not make more noise than his classmates. Finally, unlike Subject C2 (control), D.J. was neutral about bragging to other children whereas the control boy does not brag to other children. D.J. felt he is well-behaved whereas the control child was neutral, D.J. was neutral about being clumsy and teasing his friends whereas the control boy does not engage in such activities, and D.J. does not make more noise than his classmates. It is interesting to note that the difference between z-scores was most significant when D.J. was compared to the other hyperactive boys. In summary, D.J. appears to feel popular among his peers and teacher and perceived himself as a well-behaved child that does not cause trouble or make more noise than his classmates.

When interviewed about his behaviors toward his siblings, friends, and teacher, D.J. provided answers that indicated significant others became angry when D.J. provoked them but he does not get into fights. When asked whether hyperactivity is a condition which is acquired genetically or from your surroundings D.J. responded that you are "born with it."

D.J.'s mother asserted that her son was experiencing problems in peer relations and school work which resulted in daily detentions before he underwent the medication regimen. However, throughout this prior period and to the present, D.J.'s mother asserted that D.J. "doesn't seem to think he has done something wrong even if he is in trouble. He is very positive, even when in trouble."

In conclusion, D.J. (hyperactive) has a positive self-image which would not be expected in view of the behavioral difficulties he has experienced in the past and to the present. Furthermore, D.J. responded that he is well-liked and not a source of difficulty in the classroom setting. In view of the report on his numerous detentions and fights with his peers, D.J.'s perceptions of his classroom behaviors as being well-behaved are not an accurate picture of his actual performance.

Subject H2 (D.P. - Hyperactive).

D.P., a hyperactive boy, was 8 years, 9 months old at the time of the interview. He obtained a standard score of 83 on the Peabody Picture Vocabulary Test-Revised, which placed him in the low-average range of scores for his hearing vocabulary level.

D.P. was a slight, sensitive boy who avoided eye contact and slouched in his chair throughout the interview. He provided minimal verbal responses so that it was difficult to ascertain

his understanding of the tasks. D.P. wriggled in his chair shortly into the interview process and the researcher had to continually center his attention on the task. At the completion of the interview, however, the researcher felt this was a valid administration of the tasks because of the consistency of his responses. The researcher checked the understanding of his responses in order to ensure the low-average verbal ability did not unduly affect the sort.

D.P. sorted the first six Most Like Me items in the following manner:

Z-Score	Item	Statement
2.24	5	I try to get the teacher's attention more often than my friends.
1.74	18	I like to play with younger children.
1.74	8	I get into more fights than my friends.
1.24	28	I do not get angry and lose my temper.
1.24	27	I ask others before borrowing their things.
1.24	12	The teacher says I brag to other children.

Although much prompting was attempted, D.P. reiterated the statement as his reason for sorting the items in this fashion. The answers provided by D.P. are ones which a clinician, parent, or teacher may choose as indicative of a hyperactive boy. For example, D.P. indicated he attempts to engage the teacher's attention more than his peers, likes to play with younger

children, has more fights than his friends, and brags to other children. These items are in marked contrast to Subject H1's answers who responded as more well-behaved than one would expect from a hyperactive boy.

D.P.'s only Most Like Me statistically significant answer which was common to both control boys was that he "asks others before borrowing their things."

D.P. sorted the first six Least Like Me items as follows:

Z-score	Item	Statement
-2.24	19	My classmates like me.
-1.74	14	Others say I exaggerate or make up stories.
-1.74	20	I am less active than my friends.
-1.24	2	I get into trouble when asked to wait.
-1.24	10	I sometimes run around the room when excited.
-1.24	25	I am nice to the teacher.

Again, D.P. did not elaborate these answers. These items indicate that D.P. feels he is often in trouble at school, not liked by his classmates or teacher, and is more active than his peers. Again, one would list these items as indicative of a hyperactive child. They also demonstrate D.P.'s low self-concept with regard to his schooling experience.

D.P.'s Least Like Me statistically significant answers were similar to Subject H1 (hyperactive) in that they feel they do

not exaggerate or make up stories and do not get into trouble when asked to wait.

In examining the difference between z-scores (Appendix K) for each item across subjects, it can be summarized that school is a negative experience for D.P. Unlike Subject H1 (hyperactive boy), D.P. does not feel well-liked by his classmates, is not nice to the teacher, is not friendly, does not do what he is told, hits his friends when bothered and engages in more fights than his friends, makes more noise than his classmates, and attempts to engage the teacher's attention more than his friends. The difference between D.P. and Subject H3 (hyperactive boy) was that D.P. likes to play with younger children, frequently tries to obtain the teacher's attention, is neutral about agreeing with or teasing his friends whereas Subject H3 does not agree with and teases his friends, is neutral about being angry when unable to do a task whereas Subject H3 does become provoked, Subject H3 does what he is told and is nice to the teacher, and D.P. does not exaggerate or make up stories while Subject H3 was neutral about this item. In examining the differences between D.P. and Subjects C1 and C2 (control boys), D.P. felt he gets into more fights than his friends, brags to other children, likes to play with younger children, frequently attempts to engage the teacher's attention,

likes to tease his friends, is not nice to the teacher, is not liked by his classmates, and is more active than his peers. In reviewing all the subjects profiles, D.P. was markedly different from all the other boys in this study. As mentioned earlier, school appears to be an unpleasant experience for D.P.

D.P. provided vague answers or did not respond to questions asking him to elaborate on his classroom behaviors. However, he did say that peers "call him names when playing" and D.P. asserted that he "punched them." D.P. felt hyperactivity is a genetic condition.

D.P.'s mother was unaware of her son ever engaging in a fight, at home or at school. She reiterated that D.P.'s much younger sister "yells" at him and D.P. complains to his parents. D.P.'s mother said her son was "defensive, had difficulty maintaining eye contact, and is tactile." From his stature, the researcher had difficulty imagining D.P. coming out the winner in a fight!

In conclusion, D.P. does not feel popular amongst his peers which results in his playing with younger children. His answers about his attempts to engage the teacher's attention more often than his peers and D.P. not being nice to the teacher also serve to highlight the negative experience school is for this hyperactive boy.

Subject H3 (D.Y. - Hyperactive).

D.Y., a hyperactive boy, was 7 years, 11 months old at the time of the interview. He was included in the pilot study so a Peabody Picture Vocabulary Test-Revised was not administered. Because of the paucity of data and his ability to complete the task, D.Y. was included in this study.

D.Y. was a verbose, enthusiastic child who seemed oblivious to the presence of a stranger to the household. He was fidgety throughout the interview and had much difficulty remaining on task. While the researcher questioned the validity of his responses, his profile provided an interesting complement to Subject H1 and it is therefore presented in this study.

D.Y. sorted the first six Most Like Me items in the following manner:

Z-score	Item	Statement
2.24	36	I do what I am told.
1.74	37	The teacher says I am well-behaved.
1.74	16	I am friendly.
1.24	25	I am nice to the teacher.
1.24	21	I find it easy to learn new things.
1.24	15	The teacher says I make more noise than my classmates.

When asked to elaborate on his responses, D.Y. replied that

"the teacher says I am well-behaved so that makes me feel I do what I am told." Further to this statement, D.Y. asserted that "because I am nice to the teacher it makes me feel that I am friendly and well-behaved."

D.Y.'s Most Like Me statistically significant answers were most similar to Subject H1 (hyperactive) in agreeing they both do what they are told, are well-behaved, and are friendly. D.Y. also had similar answers to Subject C2 (control) in agreeing they are nice to the teacher and find it easy to learn new things.

D.Y. sorted the first Least Like Me items as follows:

Z-score	Item	Statement
-2.24	29	I seldom trip or fall down.
-1.74	9	I get angry when I cannot do something.
-1.74	18	I like to play with younger children.
-1.24	13	I like to tease my friends.
-1.24	20	I am less active than my friends.
-1.24	22	I usually agree with my friends.

D.Y. did not expand upon these answers.

D.Y.'s Least Like Me statistically significant answers were similar to Subject C2 in that they feel they are not clumsy and do not tease their friends.

In examining the difference between z-scores (Appendix K)

for each item across subjects, it can be summarized that D.Y. has a positive viewpoint about his classroom behaviors. Unlike Subject H1 (hyperactive boy), D.Y. did not feel his classmates like him, is not clumsy, does not agree with his friends, does not like to play with younger children, is more active than his friends, gets into more fights than his friends and makes more noise than his classmates. The difference between D.Y. and Subject H2 (hyperactive boy) was that D.Y. does not like to play with younger children, is neutral about eliciting the teacher's attention, does not agree with his friends, does not like to tease his friends, does not get angry when unable to complete a task, is not clumsy, feels he is well-behaved, makes more noise than his classmates, finished what he starts, finds it easy to learn new things, and is nice to the teacher. In examining the difference between D.Y. and Subject C1 (control), D.Y. does not feel he is clumsy, does not get angry when he cannot do something, feels he is friendly, feels he is well-behaved, finds it easy to learn new things, and engages in more fights than his peers. Finally, unlike Subject C2 (control), D.Y. felt he brags to other children, does what he is told, gets into more fights than his friends, is well-behaved, is less active than his peers, is not well-liked by his classmates, asks others before borrowing their things, does not get angry when he cannot do

something, and does not always agree with his friends. In summary, D.Y.'s responses are most similar to Subject H1 (hyperactive) who both feel they are well-behaved, engaging boys in the school situation.

When interviewed about his behaviors toward his siblings, friends, and teacher, D.Y. responded that others become angry with him when he does not listen or complete his assignments. D.Y. asserted that he fights with his peers when they call him names.

D.Y.'s mother reported that her son is very disruptive in all aspects, at home and at school. She felt that D.Y. "doesn't realize he is misbehaving." She reported that D.Y. has few friends and is constantly fighting with his peers. In addition, D.Y. repeated Grade 1. This report is contradictory to D.Y.'s responses that he does as asked, is well-behaved, friendly, and finds it easy to learn new things.

In conclusion, D.Y. believes he is a friendly child and does not seem aware of the effect of his behaviors upon others. His responses were similar to those of Subject H1 (hyperactive boy) who answered that he does as requested and is well-behaved. D.Y.'s perceptions of his classroom behaviors suggest he does not understand why his classmates dislike him as he perceives himself as a likeable fellow.

Subject C1 (M.P. - Control).

M.P., a control boy, was 11 years, 3 months old at the time of the interview. He is a brother to D.P., hyperactive boy, a subject in the study. He obtained a standard score of 99 on the Peabody Picture Vocabulary Test-Revised, which placed him in the average range of scores for his hearing vocabulary level.

M.P. presented himself as an engaging, confident, verbal pre-adolescent with a positive self-image. He attempted to engage the researcher in conversation by discussing projects and sports activities of which he is an avid participant. M.P. appeared to give his full attention to the tasks and provided lengthy explanations for his choices. He appeared to provide realistic responses in that he indicated he is not always well-behaved or agrees with his friends.

M.P. sorted the first six Most Like Me items in the following manner:

Z-score	Item	Statement
2.24	32	I talk a lot when learning a new game.
1.74	30	When the teacher is talking I always look at her.
1.74	3	I find it hard to listen to the teacher when there is noise in the room.
1.24	36	I do what I am told.
1.24	27	I ask others before borrowing their things.
1.24	26	I blame myself for my mistakes.

When asked to elaborate on his answers, M.P. explained that he "talks to try and understand" a new game. He replied that looking at the teacher when she is talking helps him in completing the task and "noise distracts" him. M.P. asserted that he does as told otherwise he must "stay in at recess or lunch." He explained that it is "rude not to ask before borrowing things." Finally, M.P. felt that "if you make a mistake, you should admit it."

M.P.'s Most Like Me statistically significant answers are similar to Subject H1 and H3 (hyperactive boys) in doing what they are told and Subject H2 (hyperactive) and Subject C2 (control) in asking others before borrowing their things.

M.P. sorted the first Least Like Me items as follows:

Z-score	Item	Statement
-2.24	7	I hit my friends when they bother me.
-1.74	8	I get into more fights than my friends.
-1.74	13	I like to tease my friends.
-1.24	12	The teacher says I brag to other children.
-1.24	24	Others say I exaggerate or make up stories.
-1.24	22	I usually agree with my friends.

In explaining these answers, M.P. asserted that he may argue with his friends but does not hit them or fight with them. He replied that he does not tease his friends because it may

be reciprocated. M.P. said he does not brag to others because they "are smarter than me and I don't say anything to the ones that aren't." M.P. replied that "if I don't want to say the truth, I don't say anything." Finally, M.P. explained that his friends "don't have good ideas; they only want to play soccer."

M.P.'s Least Like Me statistically significant answers were similar to Subject H1 (hyperactive) and Subject C2 (control) in that they feel they do not hit their friends or get into fights. M.P. answered similarly to both Subject H3 (hyperactive) and Subject C2 (control) in not teasing their friends. M.P. was in accordance with Subject C2 (control) in not bragging to their peers. Finally, both M.P. and Subject H3 (hyperactive) said they do not always agree with their friends. M.P. had a common statistically significant item with all the other subjects and this resulted in his profile being unique when the factor analysis was undertaken.

In examining the difference between z-scores (Appendix K) for each item across subjects, it can be summarized that M.P. has a realistic, healthy attitude about his classroom behaviors. While he viewed himself as being attentive and obeying the teacher, he also admitted to disagreeing with his friends and being verbal when learning a new game. Unlike Subject H1 (hyperactive boy), M.P. was neutral about being well-behaved, ways agree with his friends, does not like to tease or brag to

his friends, was neutral about being friendly or liked by his classmates, was neutral about making more noise than his classmates, talks when learning a new game, and finds it difficult to be attentive when there is noise in the room. The difference between M.P. and to Subject C2 (hyperactive boy) was that M.P. does not engage in teasing, hitting, or fighting with his friends, does not brag to his peers, does not like to play with younger children, does not attempt to continually engage the teacher's attention, does not always agree with his friends, feels the teacher's expectaions are appropriate, was neutral about being nice to the teacher, finishes what he starts, is attentive to the teacher, finds noise distracting, and was neutral about his classmates liking him. In examining the differences between M.P. and Subject H3 (hyperactive) and Subject C2 (control), M.P. related he is sometimes clumsy, talks when learning a new game, is attentive toward the teacher, finds noise distracting, is neutral about being friendly, and does not always find it easy to learn new things. In summary, M.P. appears well-adjusted to his schooling experience and perceives the positive and negative aspects of his personality.

When questioned about his behaviors toward his siblings, friends, and teachers, M.P. replied that others become angry with him when M.P. provokes them. M.P.'s mother saw him as a confident pre-adolescent with a normal amount of positive and

negative experiences at school and she did not express any concerns about him.

In conclusion, M.P. (control) has a realistic self-image in perceiving his strengths and weaknesses and appeared to set appropriate standard for his conduct.

Subject C2 (J.C. - Control).

J.C., a control boy, was 10 years, 9 months old at the time of the interview. He obtained a standard score of 127 on the Peabody Picture Vocabulary Test-Revised, which placed him in the above-average range of scores for his hearing vocabulary level.

J.C. presented himself as a careful, serious pre-adolescent who strives to achieve to the best of the abilities. He pondered over each item and studiously checked his answers. J.C. was a verbal pre-adolescent who appeared mature for his age.

J.C. sorted the first six Most Like Me items in the following manner:

Z-score	Item	Statement
2.24	27	I ask others before borrowing their things.
1.74	25	I am nice to the teacher.
1.74	16	I am friendly.
1.24	24	I prefer to work with others.
1.24	22	I usually agree with my friends.
1.24	21	I find it easy to learn new things.

When asked to elaborate on his answers, J.C. replied that he felt it important to ask before using someone's possessions. J.C. felt he was popular at school and does not experience difficulty learning new concepts.

J.C.'s Most Like Me statistically significant answers were most similar to Subject H3 (hyperactive boy). They both felt they are friendly, nice to the teacher, and find it easy to learn new things.

J.C. sorted the first six Least Like Me items as follows:

Z-score	Item	Statement
-2.24	12	The teacher says I brag to other children.
-1.74	13	I like to tease my friends.
-1.74	29	I seldom trip or fall down.
-1.24	8	I get into more fights than my friends.
-1.24	14	Others say I exaggerate or make up stories.
-1.24	32	I talk a lot when learning a new game.

When discussing these answers, J.C. said he does not enjoy bragging or teasing his friends. He asserted that his friends do not fight and he is not clumsy. J.C. replied that he "never exaggerates or tells stories." Finally, J.C. explained that he listens when learning a new game.

J.C.'s Least Like Me statistically significant answers were most similar to Subject C1 (control). Both boys said they do not

brag to their peers, do not like to tease their peers, do not fight with their peers, and do not exaggerate or make up stories.

In examining the difference between z-scores (Appendix K) for each item across subjects, it can be summarized that J.C. finds school a positive experience. Unlike Subject H1 (hyperactive boy), J.C. does not brag to other children, is not clumsy, does not tease his friends, and asks others before borrowing their possessions. The difference between J.C. and Subject H2 (hyperactive boy) was that J.C. does not brag to his peers, does not fight, does not attempt to engage the teacher's attention, does not like to play with younger children, does not like to tease his friends, finds it easy to learn new things, is liked by his classmates, and is nice to the teacher. In examining the differences between J.C. and Subject H3 (hyperactive boy), J.C. does not brag to other children, does not fight, does not exaggerate or make up stories, likes to be the leader in a game, is liked by his classmates, asks others before borrowing their possessions, and usually agrees with his friends. Finally, unlike Subject C1 (control boy), J.C. does not talk much when learning a new game, is not clumsy, does not talk before thinking, feels his teacher expects more from him than others, prefers to work with others, does not his his friends when bothered, is nice to the teacher, is friendly, finds it easy

to learn new things, and usually agrees with his friends. In summary, J.C. has a positive self-image about being at school and appears to regard his strengths and weaknesses appropriately.

When interviewed about his behaviors toward his siblings, friends, and teacher, J.C. responded that he makes his brother and teacher angry by provoking them and does not argue with his peers. J.C.'s mother reported that her son achieves at an appropriate level within the school system and she is not concerned about his school performance or behaviors.

In conclusion, J.C. (control) has a positive self-image and appeared to set appropriate standards for his classroom behaviors.

Medication Interview

The three hyperactive boys completed a Medication Interview (Appendix F) which required the subjects to describe how medication affects their behavior and the subject's feelings about being on stimulants. Subject H1 had been on medication for approximately three months. At 55 pounds in weight, Subject H1 was consuming 10 mg. of Methylphenidate twice daily. Subjects H2 and H3 had each been on medication for approximately three years. Subject H2, at 60 pounds in weight, was consuming 10 mg. of Methylphenidate three times daily. Subject H3, at 70 pounds in weight, was consuming 10 mg. of Methylphenidate three times daily. Sprague and Sleator (1977) have researched

methylphenidate optimal dosage levels and found optimal cognitive performance was obtained at 0.3 mg/kg but the dosage required for controlling social problem behaviors was 1.0 mg/kg. The 0.3 mg/kg dosage level for cognitive tasks would be approximately 10 mg of methylphenidate per day for an average 9-year-old boy. Subjects in this study ranged from 20 to 30 mg of methylphenidate per day which, according to Ross and Ross (1982), demonstrates the higher dosage levels commonly used in clinical practice.

All three subjects agreed they take medication because it "calms me down." Subjects H2 and H3 also replied that it "calms me down" when they take the medication. Subject H1 described the general effect of the medication as follows: "It tickles me in my legs and arms. Then it dissolves and I just feel happy. I feel like doing things faster and not as sloppy and I get stickers." Subject H1 had been on medication for the shortest period of time (three months) so that his verbal abilities combined with the short time span may have resulted in his providing an excellent example of the effects of medication.

When asked what would happen if the medication regimen was immediately terminated, Subject H1 responded that he would become physically ill, Subject H2 said he would "be dumb" and Subject H3 said he would "go crazy, like I'd keep riding my bike fast around the block." It is evident that all three boys feel it is imperative that they remain on medication.

When asked whether the medication is necessary for school work or peer relations, Subject H1 felt it was for both, Subject H2 felt it was for his school work, and Subject H3 felt it was for getting along with friends. Thus, each hyperactive boy was unique in stating whether the medication was mandatory for school work, peer relations or both.

When asked how the subjects would describe the medication effects to a friend, Subject H1 reiterated "it tickles me" and he would "have to take another pill or I'd get sick." Subject H2 could not provide a response to this question. Subject H3 would say: "I can feel it. I calm down, watch TV, make new friends. I'm crazy, dumb when it wears off."

None of the three subjects were able to describe how the pill actually works.

When asked when they will know to stop taking the medication, Subject H1 replied: "When I'm finished. When I do good printing and help others instead of just fighting with them. If I stop taking them for a few days and I don't get sick." (N.B. The examiner extensively probed the meaning of the word "sick" and was unable to obtain a response.) Subject H2 did not know when to stop the medication regimen. Subject H3 replied his "Mom will never tell me." These results indicate Subject H1 feels his behaviors must change for his medication regimen to

stop. Subject H3, however, feels the end will be determined by an outside source, his mother, and he does not have control over his action.

The implications of these results will be discussed in the conclusions section of this study.

In summary, the results from the factor analysis and Q-analysis indicate that each subject was unique in sorting the items, thus five factors emerged from the factor analysis. While the two control boys had a positive self-image about their classroom behaviors, the hyperactive boys varied in their perceptions. This variability amongst the hyperactive boys is intriguing and problematic in that their awareness of their classroom behaviors, as determined from their Q-sort and subjective interview, is not congruent with reports from significant others, as specified by a parent report and physician in this study. The results from the Medication Interview provided some interesting insights into how the hyperactive subjects perceive their condition. The last chapter will discuss the practical and theoretical implications of these findings.

Chapter 5

Discussion

This study centered on children's awareness of their classroom behaviors. In particular, hyperactive and control children were compared to determine whether hyperactive children recognize their characteristic classroom behaviors as negatively affecting significant others. An additional area of investigation was whether the hyperactive child was able to describe how medication affects his behavior and whether he feels that medication is necessary to control his behaviors.

This study arose from an extensive review of the literature and personal concerns about the hyperactive child's acceptance within the school environment. Present research (Ross & Ross, 1982) has indicated there is a link between children's attitudes and behavior outcome. In light of this, empirical research is warranted. Furthermore, numerous researchers (Battle & Lacey, 1972; Campbell & Paulauskas, 1979; Klein & Young, 1979; Whalen et al., 1979) attested to the obvious classroom management difficulties which are a result of negative interactions between a hyperactive child and significant others. Thus, this study was undertaken to determine whether hyperactive children are aware of their negative and positive behaviors within the classroom setting.

An additional area of investigation was hyperactive children's feelings about the use of medication as a form of therapy. Ross and Ross (1982) stated that, in the short-term, stimulant medication is the most effective single treatment and is widely used as a treatment strategy. Recent studies (Henker & Whalen, 1980b; Sleator et al., 1982) have maintained that researchers and clinicians must interview the hyperactive children to determine their feelings about taking stimulant drugs. Thus, hyperactive children in this study were asked to describe the effects of medication on their characteristic behaviors and whether they feel drugs are necessary to control their behaviors.

The interactional model, as proposed by Lambert and Hartsough (1984), was adopted as the theoretical basis for viewing the difficulties hyperactive children experience within the school system. This model assumes that hyperactive children have preconceived inaccurate notions of behavior expectations which result in inappropriate behaviors and negative responses from significant others. Likewise, numerous negative experiences lead significant others to expect hyperactive children to act and react inappropriately. This system of negative interactions maintains the status quo of the hyperactive child within the school environment. The interactional model has been advocated by

Ross and Ross (1982) and current research by Lambert and Hartsough (1984) has indicated this model provides a useful conceptual framework from which to view hyperactive children.

Results from this study indicated that hyperactive children are differentially aware of their characteristic behaviors as negatively affecting significant others within the classroom setting. Subjects H1 and H3, both hyperactive boys, felt they are well-behaved, friendly, and comply as expected. However, these subjects were dissimilar in their aggressive tendencies. Subject H1 stated he did not hit his friends and engage in fights. Subject H3 seemed to concentrate more on not being clumsy, being calm, and not liking to play with younger children. Both subjects were confident and verbal during the interview and provided lengthy explanations of their classroom activities which may account for their positive self-image but also indicates they are unaware and perhaps even uncertain why others dislike them because they perceive themselves as obeying, likeable children. Subject H2, a hyperactive boy, provided responses which indicated he attempts to engage the teacher's attention, he prefers playing with younger children, and engages in fights. He also indicated his classmates dislike him, is more active than his friends, and he is not nice to the teacher. This child appeared to regard himself as an unpopular, trouble-maker

at school and his nonverbal response was to be quiet and slouch as if to remain unnoticed as much as possible. While these results are in accordance with his mother's report, they also indicate this child's low self-concept with regard to his schooling experience. Thus, two hyperactive boys do not seem aware of their characteristic behaviors as negatively affecting others and appear to be self-confident, verbal children. The other hyperactive boy does seem aware of his negative behaviors and the resultant consequences but also has low self-esteem accompanying this knowledge. The two control boys provided responses which indicate they have a realistic self-image and perceive their strengths and weaknesses appropriately. These boys were most similar in not having aggressive tendencies. On the basis of these results, teachers, peers, clinicians, and physicians must regard each hyperactive child as unique in that some of the children may not be aware of the consequences of their behaviors while others see their actions as inappropriate but have an accompanying low self-concept.

Results from the Medication Interview indicate that hyperactive boys feel their medication regimen has a calming effect and Subject H1 provided an excellent example of the physical effects of the drugs. All three boys provided descriptions alluding to disastrous results such as becoming

physically ill, "dumb," and "go crazy" should their medication regimen be unexpectedly terminated. The boys provided unique responses which indicated that one boy feels an individual sense of responsibility for changing his behaviors which would result in the medication being ended (Subject H1) while another boy (Subject H3) felt an external source controls when he is to stop taking medication. Again, these results indicate that while hyperactive boys feel their medication regimen is mandatory, they must be viewed as unique in regard to their feeling responsibile for their condition.

Theoretical and Practical Implications

This study was exploratory in that researchers and laymen have intuitively asserted that the hyperactive child is unable to understand the experiences and affect of other people so his perceptions of the effects of his behaviors on others is poor (Campbell & Paulauskas, 1979). However, few empirical studies such as this one have been conducted which assessed whether hyperactive and control children are differentially aware of their behaviors. This study has important theoretical and practical implications which must be addressed.

In discussing child and adolescent perceptions of normal and atypical peers, Whalen et al. (1983) have emphasized the necessity of research directed at "improving faulty social

inference processes and enhancing children's overt interpersonal skills" (p. 1589). The present study is related to this goal in suggesting some hyperactive children are not aware of their classroom behaviors while others understand the inappropriateness of their behaviors. This research indicates the uniqueness of each child's awareness of his behaviors. Thus, behavioral strategies aimed at taking into account these individual differences must be implemented to attain optimal classroom management.

Loney et al. (1981) and Whalen and Henker (1984) have stressed the importance of studying subgroups of hyperactive children. Results from this study indicate dividing hyperactive children into subgroups is useful and necessary in order to gain a basic understanding of interaction processes. The present study indicated there are two or more types of hyperactive children: ones who perceive themselves as popular at school and thus are not aware of the inappropriateness of their classroom behaviors and others who are aware of their characteristic behaviors as negatively affecting significant others. Including aggression in the diagnosis may shed further light on what distinguishes these two groups. Thus, research into the subgroups of hyperactive children appears to be a worthwhile means to understanding these children.

Ross and Ross (1982) discuss numerous types of therapy for

managing the hyperactive child: drug intervention; behavior interventions such as self-control techniques, modeling procedures, and biofeedback; and psychotherapy. Results from this study emphasize the necessity of a treatment strategy which includes self-awareness training. Current studies from Whalen and Henker (1984) have indicated hyperactive children do not benefit from vicarious learning experiences such as watching another child act inappropriately and then learning from this child's mistakes. It appears that some hyperactive children are not aware of their behaviors so are unlikely to benefit from being reprimanded unless they are physically shown the inappropriateness of their actions; however, further research is being conducted in this area (e.g. Whalen & Henker, 1984).

Results from the Medication Interview support Cohen and Thompson (1982) in contending hyperactive children perceive negative consequences should the medication be stopped. Whalen and Henker (1984) have contended the hyperactive child may perceive his own efficacy and sense of responsibility as attributable to the medication rather than to his own skills and efforts. This hypothesis was not entirely supported in that Subject H1 felt his medication will be terminated when he acts appropriately. Subject H3, however, did seem to attribute his actions to an external source. Thus, results from this study support Sleator et al. (1982) in asserting that further research is necessary.

Implications for Further Research

The following questions for further research became apparent while this study was being conducted:

(1) When are children able to discern they have acted inappropriately--before, during, or after the act?

(2) How can the ability to generalize across situations be determined so that hyperactive children learn from theirs' and others' mistakes? Is it that the hyperactive child is less attentive to social cues, unconcerned with social inappropriatenes, or lacks the skills to act appropriately in social situations? (Whalen and Henker (1984) are presently researching such questions.)

(3) In examining subgroups of hyperactive children, what mechanisms are present which allow the child to be unaware/aware of his characteristic behaviors as negatively affecting significant others?

(4) Do hyperactive children with/without aggression differ in their awareness of their classroom behaviors?

(5) Does low self-concept always accompany increased awareness of inappropriate behaviors?

(6) Do hyperactive children attribute their own efficacy and sense of responsibility to the medication regimen?

All these questions indicate that research in the self-perceptions of hyperactive children is necessary so that these children may find their schooling a pleasant experience.

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Appendix A

Letter Explaining Study to Parents

Dear _____,

This spring we will conduct a study of children's awareness of their behaviors. In particular, we are looking for families who have boys between 8 to 12 years of age. One child will be diagnosed by a medical doctor as hyperactive and be receiving medication for his condition; the other child will not present any exceptional behavior difficulties. This study will provide parents, teachers, and clinicians with information about children's perceptions of how their positive and negative behaviors affect others.

A researcher will visit your home and ask each child to complete: a) an ability test to determine his vocabulary level, and b) an exercise which requires him to sort a number of statements which describes his behaviors within the classroom setting. In addition, each child will be asked to describe how he acts in different situations when at school and the child diagnosed as hyperactive will be asked how he feels about taking medication.

We need to ask you to complete a behavior checklist on your children so that we have your impressions of the behaviors that are unique to your children.

Your cooperation and consent is needed to help make this study a success. To date, few researchers have directly asked children their impressions about their behaviors. Thus, we may be making treatment plans with limited information.

A researcher will contact you in a week to ten days to discuss the project in further detail. Thank you for your interest thus far and I will look forward to talking with you.

Sincerely,

Gail S. Matiaszow
Research Coordinator

Appendix B

Letter of Consent From Parents

CONSENT FOR CHILD'S PARTICIPATION IN ASSESSING CHILDRENS' AWARENESS OF THEIR BEHAVIORS

I give permission for my children to participate in this study which will assess children's awareness of their behaviors. This includes my boy who is diagnosed as hyperactive and his sibling. I understand this will include: a) my children each completing a personality scale, an ability test, and an interview, and b) me completing a behavior checklist for each child. This entire interview will take approximately 2 hours to complete.

Absolute confidentiality is guaranteed, and my permission is granted only for purposes of this study. I understand that I may withdraw my child or myself from the study at any time, and that withdrawal will not affect further medical treatment or education of my children. I consent/do not consent to participate in this study. I acknowledge having received a copy of this consent form.

PRINT NAMES OF CHILDREN

SIGNATURE

DATE

Gail S. Matiaszow
Research Coordinator

Dr. J. Conry
Supervisor

Appendix C

Introduction to Q Sort

_____, I have a number of statements which can be used to describe how a child acts within the classroom. First, I want you to sort these statements into three piles: ones that are most like how you act, ones that are least like how you act, and ones that describe how you act only sometimes.

Now I want you to look at the statements which describe how you act most of the time. Pick the one statement that describes you best and place it on the square on the board marked 1. Then pick the next three statements which are most true about your behaviors within the classroom and place them on the squares marked 2, 3, and 4. Do this for the rest of the statements, placing them in order from the most like how you act to only how you act sometimes. If you have more statements than there are squares, place the left over ones in the middle pile.

Now look at the statements which describe how you very seldom or never act. Pick the one statement which describes this best and place it in the square on the board marked 41. Now pick the next three statements which are least true about your behaviors within the classroom and place them on the squares marked 38, 39, and 40. Do this for the rest of the statements, placing them in order from how you least act to how you only sometimes act.

Great! You did a fine job of sorting those statements. Now I want to talk to you about your behavior in the classroom and how you act under certain situations.

Appendix D

Introduction to Questionnaires

_____, I want a chance to get to know you better. You sorted those statements very well. Now I want to ask you some questions on what you think about yourself and taking medication. I am studying how children describe their actions in the classroom and what they feel their friends think about them. Most people ask teachers, parents, or other adults, but I want to know what you think. I hope to use this information to teach people how to understand and how to help other children. No one else, including your teachers, parents, or doctor, will be able to see your answers or know you gave these answers. Are you willing to do this for me?

Appendix E

Hyperactivity Interview

Name: _____

Address: _____

_____

Date of Birth: _____

Age: _____ Grade : _____

Brothers/Sisters	Birthdate	Sex

What do you do that makes your brother/sister angry?

Describe: _____

_____

_____

What do you do that makes your brother/sister happy?

Describe: _____

_____

_____

What do you do that makes your friends angry?

Describe: _____

What do you do that makes your friends happy?

Describe: _____

What do you do that makes your teacher angry?

Describe: _____

What do you do that makes your teacher happy?

Describe: _____

Do your friends ever bully you or call you names? Yes ___ No __

Describe: _____

Do you ever get into fights? Yes ___ No ___

Describe: _____

Do you think hyperactivity is something that a person is born with or a habit people pick up?

Describe: _____

How do children become hyperactive?

Appendix F

Medication Interview

Name: _____ Weight: _____

Type of Medication: _____ Dosage Level: _____

Timing of Medication: _____

Length of Treatment: _____

People take medicine for different reasons. Why do you take medication? _____

_____

_____

What happens when you take medication?

Describe: _____

_____

_____

_____

What would happen if you stopped taking medication right now?

How would things be the same and how would they be different?

_____

_____

_____

_____

Does medication help you more for school work or for getting along with friends? _____

_____

Pretend that a friend of yours was about to start taking medication and he asked you what you thought?

a) How can you tell it's working? _____

_____

_____

b) What happens when it wears off? _____

_____

_____

c) How does taking the medication make you feel? _____

_____

_____

What are your hunches about how a pill actually works?

_____

_____

_____

When will you know to stop taking medication?

_____

_____

_____

Appendix G

Instructions to Parents for Completing the

Werry-Weiss-Peters Activity Scale

_____, I have an activity scale which I would like you to complete for your child. Place a check mark on the line that best describes your child's activities within each one of the areas. You will notice that your choices are from No to Yes-A little bit to Yes-Very much. Don't think about your answers too long; just indicate which activity is generally most like your child.

Appendix H

Werry-Weiss-Peters Activity Scale

	No (Average Child*)	Yes-A little bit (Annoys Family*)	Yes-Very much (Disrupts Family*)
During meals			
Up and down at table	___	___	___
Interrupts without regard	___	___	___
Wriggling	___	___	___
Fiddles with things	___	___	___
Talks excessively	___	___	___
Television			
Gets up and down during program	___	___	___
Wriggles	___	___	___
Manipulates objects or body	___	___	___
Talks incessantly	___	___	___
Interrupts	___	___	___
Doing home work			
Gets up and down	___	___	___
Wriggles	___	___	___
Manipulates objects or body	___	___	___
Talks incessantly	___	___	___
Requires adult supervision or attendance	___	___	___
Play			
Inability for quiet play	___	___	___
Constantly changing activity	___	___	___
Seeks parental attention	___	___	___
Talks excessively	___	___	___
Disrupts other's play	___	___	___
Seeks younger children*	___	___	___
Sleep			
Difficulty settling down for sleep	___	___	___
Inadequate amount of sleep	___	___	___
Restless during sleep	___	___	___

Behavior away from home (except school)			
Restlessness during travel	____	____	____
Restlessness during shopping (includes touching everything)	____	____	____
Restlessness during church/ movies	____	____	____
Restlessness during visiting friends, relatives, etc.	____	____	____
School behavior			
Up and down	____	____	____
Fidgets, wriggles, touches	____	____	____
Interrupts teacher or other children excessively	____	____	____
Constantly seeks teacher's attention	____	____	____
Accident Prone*	____	____	____
Total Score	____	____	____

*Desriptors were added by the researcher.

Appendix I

Q-sort Statements

1 Other children say I bother them when we are doing work on our own.
2 I get into trouble when asked to wait.
3 I find it hard to listen to the teacher when there is noise in the room.
4 The teacher says I talk before thinking.
5 I try to get the teacher's attention more often than my friends.
6 My teacher expects more from me than others.
7 I hit my friends when they bother me.
8 I get into more fights than my friends.
9 I get angry when I cannot do something.
10 I sometimes run around the room when excited.
11 I tell other children what to do.
12 The teacher says I brag to other children.
13 I like to tease my friends.
14 Others say I exaggerate or make up stories.
15 The teacher says I make more noise than my classmates.
16 I am friendly.
17 I finish things that I start.
18 I like to play with younger children.
19 My classmates like me.
20 I am less active than my friends.
21 I find it easy to learn new things.
22 I usually agree with my friends.
23 I like to be the leader in a game.
24 I prefer to work with others.
25 I am nice to the teacher.
26 I blame myself for my mistakes.
27 I ask others before borrowing their things.
28 I do not get angry and lose my temper.
29 I seldom trip or fall down.
30 When the teacher is talking I always look at her.
31 I often get up when told to work on my own.
32 I talk a lot when learning a new game.
33 The teacher says I do not listen to her.
34 I get into trouble when doing things on my own.
35 I help others.
36 I do what I am told.
37 The teacher says I am well-behaved.
38 I get in trouble after I have finished my work.

Q-Scores: Subject x Item Data Matrix for Q-sorts

Item Scores of Children, Based on their Awareness of their Behaviors Within the Classroom Setting

Subject Code*	Computer Number	Item 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
H1	1	5	3	3	4	4	5	2	2	4	5	4	6	5	3	1	9	8	6	9
H2	2	5	3	6	5	10	7	5	9	5	3	7	8	6	2	5	7	4	9	1
H3	4	4	4	6	5	5	5	4	7	2	6	6	7	3	6	8	9	7	2	4
C1	3	5	4	9	7	5	4	1	2	7	5	7	3	2	3	6	6	7	4	6
C2	5	5	6	5	4	4	7	4	3	6	4	6	1	2	3	6	9	5	4	7

Subject Code*	Computer Number	Item 20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
H1	1	6	6	7	8	7	7	6	6	7	5	7	5	5	5	4	6	8	10	6
H2	2	2	4	6	5	6	3	6	8	8	4	6	7	4	7	5	5	6	6	4
H3	4	3	8	3	4	6	8	5	7	7	1	5	5	5	6	6	6	10	9	5
C1	3	5	4	3	6	5	6	8	8	6	7	9	5	10	6	5	6	8	5	4
C2	5	6	8	8	7	8	9	7	10	6	2	6	6	3	5	5	5	5	5	7

*Explanation of Code: H=Hyperactive; C=Control.

Appendix K

Z-Scores: Difference Between Z-Scores for a Particular Item

Subject H1 vs H2*

Difference Z-Score	Item	Statement
3.98	19	My classmates like me.
1.99	37	The teacher says I am well-behaved.
1.99	20	I am less active than my friends.
1.99	17	I finish things that I start.
1.99	25	I am nice to the teacher.
1.49	23	I like to be the leader in a game.
1.00	16	I am friendly.
1.00	36	I do what I am told.
1.00	10	I sometimes run around the room when excited.
1.00	38	I get in trouble after I have finished my work.
1.00	21	I find it easy to learn new things.
-1.00	33	The teacher says I do not listen to her.
-1.00	31	I often get up when told to work on my own.
-1.00	6	My teacher expects more from me than others.
-1.00	27	I ask others before borrowing their things.
-1.00	12	The teacher says I brag to other children.
-1.49	11	I tell other children what to do.

(table continues)

Differences Z-Score	Item	Statement
-1.49	7	I hit my friends when they bother me.
-1.49	3	I find it hard to listen to the teacher when there is noise in the room.
-1.49	18	I like to play with younger children.
-1.99	15	The teacher says I make more noise than my classmates.
-2.99	5	I try to get the teacher's attention more often than my friends.
-3.48	8	I get into more fights than my friends.

Subject H1 vs C1

Differences Z-Score	Item	Statement
2.49	37	My teacher says I am well-behaved.
1.99	22	I usually agree with my friends.
1.49	13	I like to tease my friends.
1.49	12	The teacher says I brag to other children.
1.49	19	My classmates like me.
1.49	16	I am friendly.
1.00	38	I get in trouble after I have finished my work.
1.00	21	I find it easy to learn new things.
1.00	18	I like to play with younger children.

(table continues)

Differences Z-Scores	Item	Statement
1.00	23	I like to be the leader in a game.
1.00	24	I prefer to work with others.
-1.00	29	I seldom trip or fall down.
-1.00	27	I ask others before borrowing their things.
-1.00	26	I blame myself for my mistakes.
-1.00	30	When the teacher is talking I always look at her.
-1.49	11	I tell other children what to do.
-1.49	9	I get angry when I cannot do something.
-1.49	4	The teacher says I talk before thinking.
-2.49	15	The teacher says I make more noise than my classmates.
-2.49	32	I talk a lot when learning a new game.
-2.99	3	I find it hard to listen to the teacher when there is noise in the room.

Subject H1 vs H3

Differences Z-Score	Item	Statement
2.49	19	My classmates like me.
1.99	23	I like to be the leader in a game.
1.99	29	I seldom trip or fall down.

(table continues)

Differences Z-Score	Item	Statement
1.99	22	I usually agree with my friends.
1.99	18	I like to play with younger children.
1.49	20	I am less active than my friends.
1.00	30	When the teacher is talking I always look at her.
1.00	13	I like to tease my friends.
1.00	9	I get angry when I cannot do something.
-1.00	36	I do what I am told.
-1.00	21	I find it easy to learn new things.
-1.00	34	I get into trouble when doing things on my own.
-1.00	11	I tell other children what to do.
-1.00	7	I hit my friends when they bother me.
-1.49	14	Others say I exaggerate or make up stories.
-1.49	3	I find it hard to listen to the teacher when there is noise in the room.
-2.49	8	I get into more fights than my friends.
-3.48	15	The teacher says I make more noise than my classmates.

(table continues)

Subject H1 vs C2

Differences Z-Score	Item	Statement
2.49	12	The teacher says I brag to other children.
2.49	37	The teacher says I am well-behaved.
1.49	29	I seldom trip or fall down.
1.49	13	I like to tease my friends.
1.49	36	I do what I am told.
1.49	17	I finish things that I start.
1.00	32	I talk a lot when learning a new game.
1.00	18	I like to play with younger children.
1.00	19	My classmates like me.
-1.00	7	I hit my friends when they bother me.
-1.00	3	I find it hard to listen to the teacher when there is noise in the room.
-1.00	11	I tell other children what to do.
-1.00	9	I get angry when I cannot do something.
-1.00	6	My teacher expects more from me than others.
-1.00	21	I find it easy to learn new things.
-1.00	25	I am nice to the teacher.
-1.49	2	I get into trouble when asked to wait.
-1.99	27	I ask others before borrowing their things.
-2.49	15	The teacher says I make more noise than my classmates.

(table continues)

Subject H2 vs C1

Differences Z-Scores	Item	Statement
3.48	8	I get into more fights than my friends.
2.49	12	The teacher says I brag to other children.
2.49	18	I like to play with younger children.
2.49	5	I try to get the teacher's attention more often than my friends.
1.99	7	I hit my friends when they bother me.
1.99	13	I like to tease my friends.
1.49	22	I usually agree with my friends.
1.49	6	My teacher expects more from me than others.
1.00	28	I do not get angry and lose my temper.
1.00	31	I often get up when told to work on my own.
-1.00	10	I sometimes run around the room when excited.
-1.00	9	I get angry when I cannot do something.
-1.00	4	The teacher says I talk before thinking.
-1.00	36	I do what I am told.
-1.00	26	I blame myself for my mistakes.
-1.49	25	I am nice to the teacher.
-1.49	20	I am less active than my friends.
-1.49	29	I seldom trip or fall down.
-1.49	17	I finish things that I start.

(table continues)

Differences Z-Score	Item	Statement
-1.49	30	When the teacher is talking I always look at her.
-1.49	3	I find it hard to listen to the teacher when there is noise in the room.
-2.49	19	My classmates like me.
-2.99	32	I talk a lot when learning a new game.

Subject H2 vs H3

Differences Z-Score	Item	Statement
3.48	18	I like to play with younger children.
2.49	5	I try to get the teacher's attention more often than my friends.
1.49	22	I usually agree with my friends.
1.49	13	I like to tease my friends.
1.49	9	I get angry when I cannot do something.
1.49	29	I seldom trip or fall down.
1.00	8	I get into more fights than my friends.
1.00	31	I often get up when told to work on my own.
1.00	6	My teacher expects more from me than others.
-1.00	16	I am friendly.
-1.49	37	The teacher says I am well-behaved.

(table continues)

Differences Z-Score	Item	Statement
-1.49	15	The teacher says I make more noise than my classmates.
-1.49	17	I finish things that I start.
-1.49	10	I sometimes run around the room when excited.
-1.49	19	My classmates like me.
-1.99	36	I do what I am told.
-1.99	21	I find it easy to learn new things.
-1.99	14	Others say I exaggerate or make up stories.
-2.49	25	I am nice to the teacher.

Subject H2 vs C2

Differences Z-Score	Item	Statement
3.48	12	The teacher says I brag to other children.
2.99	8	I get into more fights than my friends.
2.99	5	I try to get the teacher's attention more often than my friends.
2.49	18	I like to play with younger children.
1.99	13	I like to tease my friends.
1.00	29	I seldom trip or fall down.
1.00	28	I do not get angry and lose my temper.
1.00	33	The teacher says I do not listen to her.
-1.00	23	I like to be the leader in a game.

(table continues)

Differences Z-Score	Item	Statement
-1.00	24	I prefer to work with others.
-1.00	22	I usually agree with my friends.
-1.00	27	I ask others before borrowing their things.
-1.00	16	I am friendly.
-1.49	2	I get into trouble when asked to wait.
-1.49	38	I get into trouble after I have finished my work.
-1.99	20	I am less active than my friends.
-1.99	21	I find it easy to learn new things.
-2.99	19	My classmates like me.
-2.99	25	I am nice to the teacher.

Subject C1 vs H3

Differences Z-Score	Item	Statement
2.99	29	I seldom trip or fall down.
2.49	32	I talk a lot when learning a new game.
2.49	9	I get angry when I cannot do something.
1.99	30	When the teacher is talking I always look at her.
1.49	3	I find it hard to listen to the teacher when there is noise in the room.
1.49	26	I blame myself for my mistakes.

(table continues)

Differences Z-Score	Item	Statement
1.00	4	The teacher says I talk before thinking.
1.00	23	I like to be the leader in a game.
1.00	19	My classmates like me.
1.00	20	I am less active than my friends.
1.00	18	I like to play with younger children.
-1.00	36	I do what I am told.
-1.00	25	I am nice to the teacher.
-1.00	15	The teacher says I make more noise than my classmates.
-1.49	16	I am friendly.
-1.49	14	Others say I exaggerate or make up stories.
-1.49	7	I hit my friends when they bother me.
-1.99	37	The teacher says I am well-behaved.
-1.99	21	I find it easy to learn new things.
-1.99	12	The teacher says I brag to other children.
-2.49	8	I get into more fights than my friends.

Subject C1 vs C2

Differences Z-Score	Item	Statement
3.48	32	I talk a lot when learning a new game.
2.49	29	I seldom trip or fall down.

(table continues)

Differences Z-Score	Item	Statement
1.99	3	I find it hard to listen to the teacher when there is noise in the room.
1.49	30	When the teacher is talking I always look at her.
1.49	36	I do what I am told.
1.49	4	The teacher says I talk before thinking.
1.00	12	The teacher says I brag to other children.
1.00	17	I finish things that I start.
-1.00	2	I get into trouble when asked to wait.
-1.00	27	I ask others before borrowing their things.
-1.49	38	I get in trouble after I have finished my work.
-1.49	6	My teacher expects more from me than others.
-1.49	24	I prefer to work with others.
-1.49	7	I hit my friends when they bother me.
-1.49	25	I am nice to the teacher.
-1.49	16	I am friendly.
-1.99	21	I find it easy to learn new things.
-2.49	22	I usually agree with my friends.

(table continues)

Subject H3 vs C2

Differences Z-Score	Item	Statement
2.99	12	The teacher says I brag to other children.
2.49	36	I do what I am told.
1.99	8	I get into more fights than my friends.
1.99	37	The teacher says I am well-behaved.
1.49	14	Others say I exaggerate or make up stories.
1.00	32	I talk a lot when learning a new game.
1.00	10	I sometimes run around the room when excited.
1.00	17	I finish things that I start.
1.00	15	The teacher says I make more noise than my classmates.
-1.00	18	I like to play with younger children.
-1.00	2	I get into trouble when asked to wait.
-1.00	38	I get in trouble after I have finished my work.
-1.00	26	I blame myself for my mistakes.
-1.00	6	My teacher expects more from me than my classmates.
-1.00	24	I prefer to work with others.
-1.49	20	I am less active than my friends.
-1.49	23	I like to be the leader in a game.
-1.49	19	My classmates like me.

(table continues)

Differences Z-Score	Item	Statement
-1.49	27	I ask others before borrowing their things.
-1.99	9	I get angry when I cannot do something.
-2.49	22	I usually agree with my friends.

*Explanation of Code: H=Hyperactive; C=Control.